

EXHIBIT A

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

ZTE Corporation, ZTE (USA), Inc., and ZTE (TX), Inc.,

Petitioner,

v.

WSOU Investments LLC D/B/A Brazos Licensing and Development,

Patent Owner.

U.S. Patent No. 8,147,071

Case No. IPR2021-00695

PETITION FOR *INTER PARTES* REVIEW

TABLE OF CONTENTS

I.	PRELIMINARY STATEMENT	1
II.	THE '071 PATENT	3
III.	OVERVIEW OF PRIOR ART	4
A.	<i>Huebner</i>	4
B.	<i>De Haan</i>	5
IV.	LEVEL OF ORDINARY SKILL IN THE ART.....	6
V.	CLAIM CONSTRUCTION	7
VI.	STATEMENT OF PRECISE RELIEF REQUESTED	8
1.	Claims for Which Review Is Requested	8
2.	Statutory Grounds.....	8
VII.	GROUND 1: CLAIMS 1-5, 7-11, 13 AND 14 ARE UNPATENTABLE OVER <i>HUEBNER</i>	8
A.	Claim 1	9
1.	[1p] “A processor for providing image data signaling to a projector, the image data signaling representing an image to be projected by the projector, the processor comprising:”	9
2.	[1A] “an input to receive movement signaling associated with movement of the projector; and”	12
3.	[1B] “an output configured to provide image data signaling to the projector,”.....	14
4.	[1C] “and wherein the processor is configured to provide image data signaling to the projector based on received movement signaling,”	16

5.	[1D] “wherein the movement signaling provides an indication of one or more movement criterion of the projector,”	18
6.	[1E] “the movement criterion representing one or more of displacement and movement speed of the projector, and ”	19
7.	[1F] “wherein the processor is configured to discriminate a movement criterion and to provide associated image data signaling to project associated image data.”	22
B.	[Claim 2] A processor according to claim 1, wherein the particular image data for a particular movement criterion corresponds to an image associated with one or more of a particular function within an application, or one of a plurality of different applications, to be projected by the projector.	24
C.	[Claim 3] A processor according to claim 1, wherein the particular image data for a particular movement criterion corresponds to an image associated with a particular function within an application to be projected by the projector.....	27
D.	[Claim 4] A processor according to claim 1, wherein the particular image data for a particular movement criterion corresponds to an image associated with one of a plurality of different applications to be projected by the projector.	27
E.	[Claim 5] A processor according to claim 1, wherein the particular image data for a particular movement criterion corresponds to an image associated with part of a larger image, and wherein movement of the projector provides for scanning across to and projection of respective parts of the larger image.....	28
F.	[Claim 7] A processor according to claim 5, wherein the movement of the projector provides for continuous scanning across to and projection of respective parts of the larger image.....	30
G.	[Claim 8] A processor according to claim 1, wherein the projector is a micro-projector.....	31

H.	Claim 9	31
1.	[9A] An apparatus comprising the processor of claim 1, and a movement sensor configured to detect movement of the apparatus and/or a projector, and.....	31
2.	[9B] wherein the movement sensor is configured to provide corresponding movement signaling to the processor.	33
I.	Claim 10	34
1.	[10A] The apparatus of claim 9, wherein: the apparatus is a projector, or the apparatus comprises a projector; and	34
2.	[10B] the movement sensor is configured to detect movement of the projector.	35
J.	[Claim 11] The apparatus of claim 9, wherein the apparatus is a module for a projector.	35
K.	Claim 13	36
L.	Claim 14	37
1.	[14p] A computer readable medium comprising computer program code configured to, when executed by one or more processors, cause an apparatus to perform at least:	37
VIII.	GROUND 2: CLAIMS 1-14 ARE UNPATENTABLE OVER <i>DE HAAN</i>	40
A.	Claim 1	40
1.	[1p].....	40
2.	[1A]	43
3.	[1B]	45
4.	[1C]	46
5.	[1D]	47

IPR2021-00695 Petition
U.S. Patent 8,147,071

6.	[1E].....	48
7.	[1F].....	50
B.	[Claim 2].....	52
C.	[Claim 3].....	54
D.	[Claim 4].....	54
E.	[Claim 5].....	54
F.	[Claim 6] A processor according to claim 5, wherein the movement of the projector provides for incremental scanning across to and projection of respective parts of the larger image.....	57
G.	[Claim 7].....	58
H.	[Claim 8].....	59
I.	Claim 9	60
1.	[9A]	60
2.	[9B]	62
J.	Claim 10	63
1.	[10A]	63
2.	[10B]	64
K.	[Claim 11].....	65
L.	[Claim 12] A user interface configured to be connected to the processor of claim 1, the user interface configured to be operable to configure the processor to provide image data signaling to the projector based on received movement signaling.	65
M.	Claim 13	68
N.	Claim 14	69

1.	[14p]	69
IX.	NON-INSTITUTION UNDER 35 U.S.C. §§ 314 OR 325 WOULD BE IMPROPER	71
A.	Non-Institution Under 35 U.S.C. §314(a) Is Improper.....	71
B.	Non-Institution Under 35 U.S.C. §325 Is Improper	74
X.	MANDATORY NOTICES	75
A.	Real Parties-in-Interest.....	75
B.	Related Matters.....	75
C.	Lead and Back-Up Counsel, and Service Information	76
XI.	GROUNDS FOR STANDING.....	77
XII.	CONCLUSION.....	77

IPR2021-00695 Petition
U.S. Patent 8,147,071**LIST OF EXHIBITS**

Exhibit	Description
Ex-1001	U.S. Patent No. 8,147,071 (the '071 patent)
Ex-1002	Prosecution File History of U.S. Patent No. 8,147,071
Ex-1003	Declaration of Mr. Stephen Gray
Ex-1004	Curriculum Vitae of Mr. Stephen Gray
Ex-1005	U.S. Patent Application Publication No. 2009/0091710 to Huebner (“ <i>Huebner</i> ”)
Ex-1006	U.S. Patent Application Publication No. 2010/0031201 to de Haan (“ <i>de Haan</i> ”)
Ex-1007	Excerpts from IEEE-Wiley Dictionary (2004) (“IEEE-Wiley Dictionary”)
Ex-1008	European Patent No. 0773494 to Carns et al.
Ex-1009	U.S. Patent No. 7,500,758 to Adachi et al. (“ <i>Adachi</i> ”)

I. PRELIMINARY STATEMENT

ZTE Corporation, ZTE (USA), Inc., and ZTE (TX), Inc., (collectively “ZTE”) requests *inter partes* review of claims 1-14 of U.S. Patent No. 8,147,071 (Ex-1001). WSOU Investments LLC (“WSOU”) asserts the ’071 patent against ZTE in WSOU Investments LLC v. ZTE Corporation et al., 6:20-cv-00492-ADA (W.D. Tex.) (“Litigation”).

The ’071 patent describes **a processor** configured for providing image data “signaling”¹ to **a projector** based on received movement signaling, but the disclosed methods for providing image data signaling to a projector were known in the prior art.

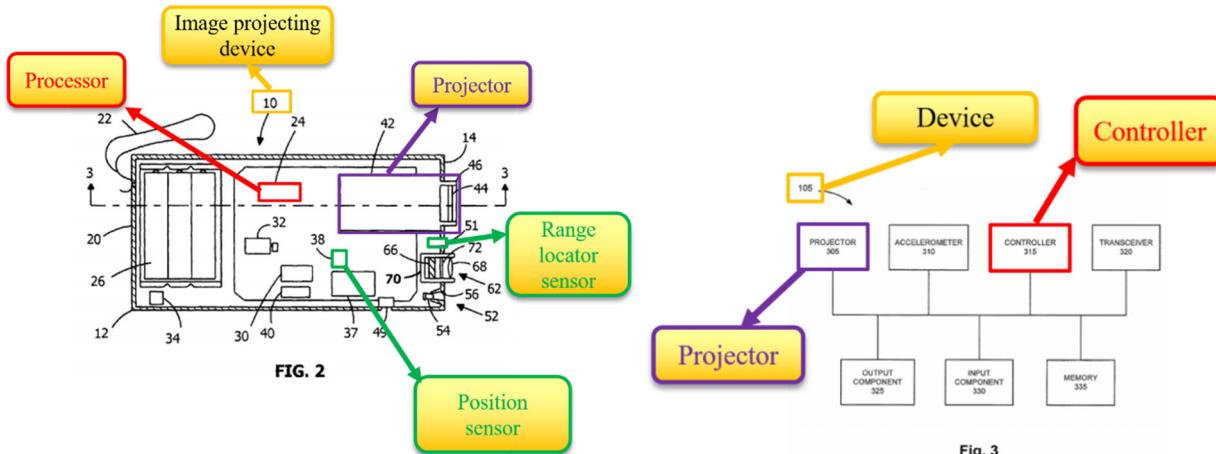
No	Claim Limitation
1p	A processor for providing image data signaling to a projector, the image data signaling representing an image to be projected by the projector, the processor comprising
1A	an input to receive movement signaling associated with movement of the projector; and
1B	an output configured to provide image data signaling to the projector,
1C	and wherein the processor is configured to provide image data signaling to the projector based on received movement signaling,
1D	wherein the movement signaling provides an indication of one or more movement criterion of the projector,

¹ The ’071 patent recites “signalling” throughout the claims and the specification. Petitioner uses the correct spelling, “signaling”, throughout this petition.

1E	the movement criterion representing one or more of displacement and movement speed of the projector , and
1F	wherein the processor is configured to discriminate a movement criterion and to provide associated image data signaling to project associated image data.

'071 Patent, Claim 1 (Annotated).

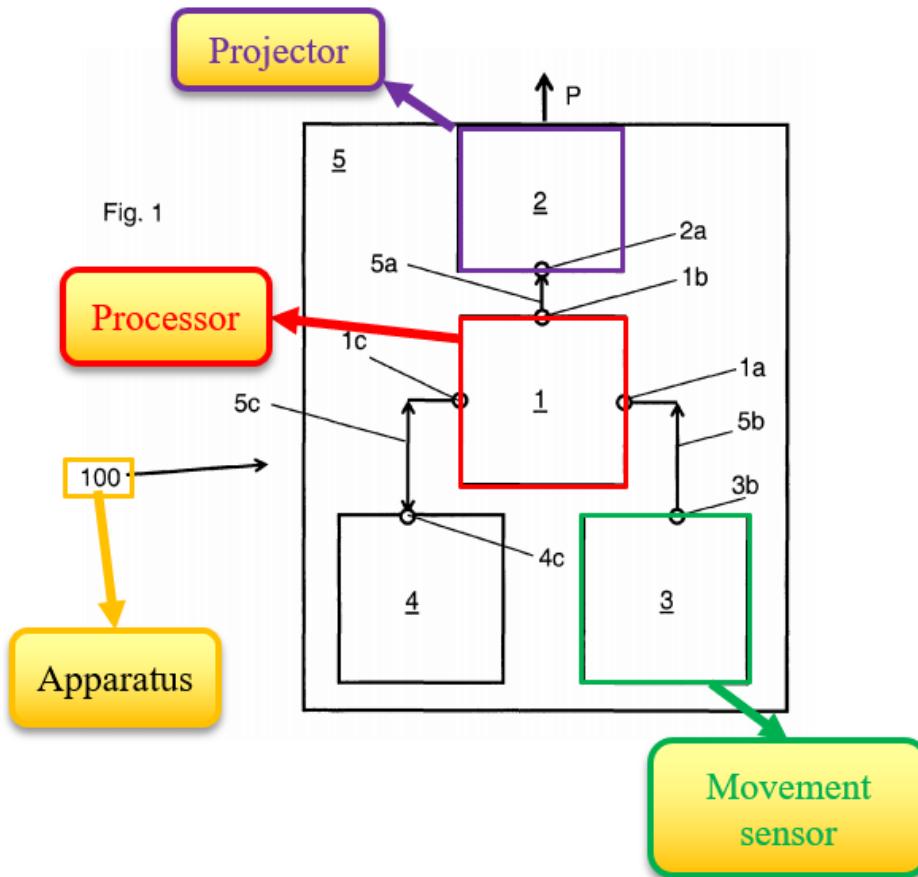
Huebner (Ex-1005) (see Annotated Fig. 2 below), and *De Haan* (Ex-1006) (see Annotated Fig. 3 below), disclose projecting image data based on received movement signaling like that claimed the '071 patent. Alone or when combined in routine, predictable ways, *Huebner* and *De Haan*—none of which were considered by the USPTO during prosecution of the '071 patent—anticipate and/or render obvious all features of the challenged claims.



(Left) *Huebner*, Ex-1005, Annotated Fig. 2; (Right) *De Haan*, Ex-1006, Annotated Fig. 3.

II. THE '071 PATENT

Like *Huebner* and *De Haan*, the '071 patent describes a processor for controlling images to be projected by a projector. '071 patent, Abstract, 5:62-6:3; *Huebner*, ¶[0005]; *De Haan*, ¶[0056]. Fig. 1 shows an **apparatus 100** with a **processor 1** to control the connected **projector 2**. *Id.*, 4:29-34. The apparatus also includes **movement sensor 3**, which is unremarkably used to detect movement of the apparatus and send its output (i.e., the movement signaling) to **processor 1**. *Id.*, 4:39-42; 6:34-41.



'071 Patent, Annotated FIG. 1.

III. OVERVIEW OF PRIOR ART

The '071 patent was filed on April 29, 2009 without any priority claims. For the reasons explained, each of the references discussed below is prior art.

A. *Huebner*

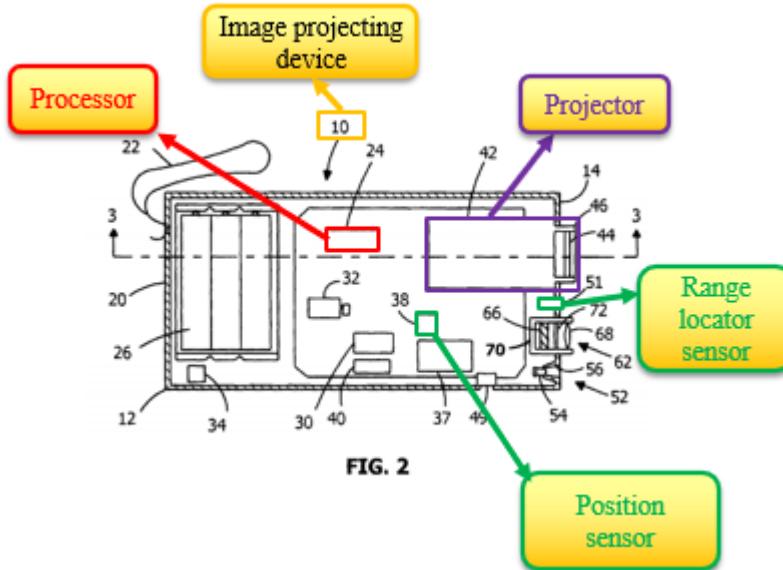
U.S. Patent Pub. No. 2009/0091710 (Ex-1005, “*Huebner*”), published on April 9, 2009 and filed on October 5, 2007, is prior art under 35 U.S.C. §§ 102(b) and § 102(e).

Huebner describes “[a]n interactive image projecting device that projects an image onto a display surface and controls the projected image based upon movement of the image projecting device.” *Huebner*, Abstract. The device includes “a microprocessor-based control unit that is operatively associated with a projector.” *Id.*, ¶[0005].

Fig. 2 of *Huebner* shows an **image projecting device 10** with a **projector 42**, **control unit 24**, and sensors including **position sensor 38**, and **range locator sensor 51**.¹ *Id.*, ¶¶[0064], [0066], [0075]. When the **image projecting device 10** moves, the **position sensor 38** sends movement signals to the **control unit 24** regarding movement of the **image projecting device 10**. *Id.*, ¶[0064]. When the **image projecting device 10** is a distance from an object such as a wall, **control unit 24** can read the **range locator sensor 51** to determine the distance to the wall. *Id.*, ¶[0142]. Projector **42** is in operative communication with **control unit 24** and projects an

image, and **control unit 24** modifies the image based on sensed movement signals.

Id., ¶¶, [0008], [0066].



Id., Annotated FIG. 2.

B. *De Haan*

U.S. Patent Pub. No. 2010/0031201 (Ex-1006, “*De Haan*”), filed on July 31, 2008, is prior art under 35 U.S.C. § 102(e).

De Haan describes a device that projects an image. *De Haan*, Abstract. *De Haan*’s **device 105**, an internal diagram of which is shown in Fig. 3 below, includes **controller 315**, **accelerometer 310**, and **projector 305**. *Id.*, ¶[0050]. **Controller 315** includes a processor and executes instructions to control components of **device 105**. *Id.*, ¶[0054]. **Controller 315** receives movement information, including speed and orientation, from **accelerometer 310**. *Id.*, ¶[0056].

Controller 315 determines compensation information to stabilize the projected image so that projector 305 projects an image. *Id.*

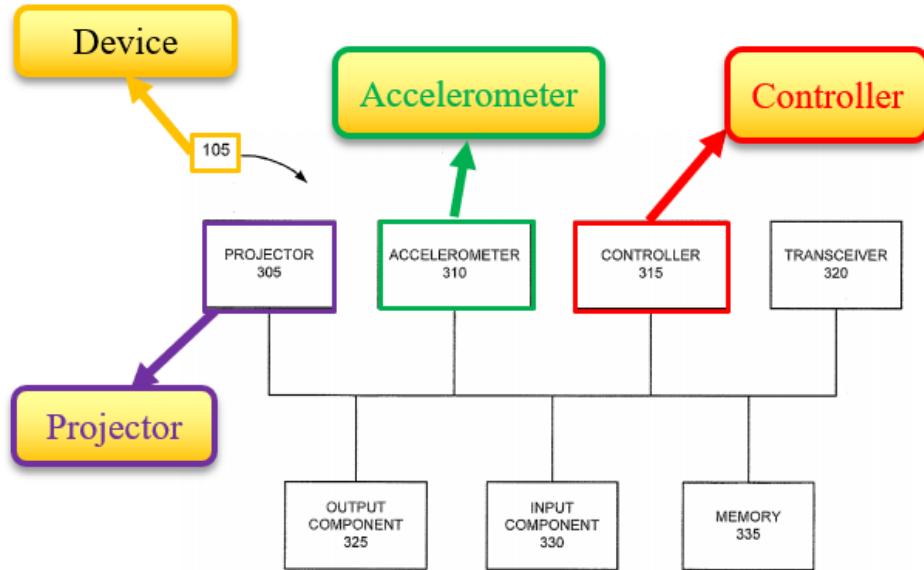


Fig. 3

De Haan, Annotated FIG. 3.

IV. LEVEL OF ORDINARY SKILL IN THE ART

A person of ordinary skill in the art (“POSA”) at the time of the purported invention would have had a Bachelor of Science degree in Electrical Engineering or an equivalent field, with two years of academic or industry experience in computer systems or comparable industry experience. Ex-1003, ¶38. With more education, for example, postgraduate degrees and/or study, less experience is needed to attain an ordinary level of skill in the art. Similarly, more experience can substitute for formal education. Ex-1003, ¶38.

V. CLAIM CONSTRUCTION

Only claim terms “in controversy” need be construed in IPR “and only to the extent necessary to resolve the controversy.” *Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017) (citation omitted), *cert. denied*, 138 S. Ct. 1695 (2018). No claim terms need to be construed by the Board at this time.

In the District Court, Petitioner and Patent Owner have offered the following terms for construction, *see* Litigation, Dkt. 59, p. 9:

Claim	Term	Petitioner’s Proposed Construction	Patent Owner’s Proposed Construction
1, 9, 13, 14	“movement signaling”	Indefinite	Plain and Ordinary Meaning
	“discriminate”	Indefinite	Plain and Ordinary Meaning
1, 13, 14	“provide associated image data signaling to project associated image data”	Indefinite	Plain and Ordinary Meaning
1, 9, 13, 14	“the processor”	Indefinite	Plain and Ordinary Meaning

For the purpose of this IPR, Petitioner adopts Patent Owner’s constructions for the above terms. Moreover, given the similarities between the prior art the disclosure

of the '071 patent, no express construction of these terms is needed to determine whether the claims are unpatentable.

VI. STATEMENT OF PRECISE RELIEF REQUESTED

1. Claims for Which Review Is Requested

Petitioners respectfully request review under 35 U.S.C. § 311 of claims 1-14 of the '071 patent and cancellation of those claims as unpatentable.

2. Statutory Grounds

This petition presents the following grounds of unpatentability:

Ground	References	Basis	Challenged Claim(s)
1	<i>Huebner</i>	§ 102, § 103	1-5, 7-11, 13, and 14
2	<i>De Haan</i>	§ 102, § 103	1-14

VII. GROUND 1: CLAIMS 1-5, 7-11, 13 AND 14 ARE UNPATENTABLE OVER HUEBNER

Huebner anticipates claims 1-5, 7-11, 13 and 14. Ex-1003, ¶51.

Huebner discloses each and every element of the claims. But to the extent Patent Owner argues sending video data/content to a microprocessor, as recited in *Huebner*, does not disclose the claimed “image data,” it would have been obvious. Ex-1003, ¶51.

A. Claim 1

Huebner anticipates and/or renders obvious claim 1. Ex-1003, ¶52.

1. [1p] “A processor for providing image data signaling to a projector, the image data signaling representing an image to be projected by the projector, the processor comprising:”

Huebner teaches the preamble because *Huebner* discloses a control unit with a microprocessor (i.e., claimed processor) that communicates video data (including the images in the video) to the projector to be projected. Ex-1003, ¶53.

Huebner discloses the claimed processor because its control unit 24 includes a microprocessor. *Id.*, ¶¶[0005], [0060]. A POSA would have understood that a microprocessor is a type of processor. Ex-1003, ¶54.

Huebner also discloses the claimed projector because its “image projecting device includes a projector that generates an image from a control unit.” *Id.*, Abstract. As shown in Figure 2, *Huebner*’s **image projecting device 10** includes **projector 42** and **control unit 24**. *Id.*, ¶[0064]. The **projector 42** communicates with **control unit 24** “to project an image from the **image projecting device 10**.” *Id.*, ¶[0066].

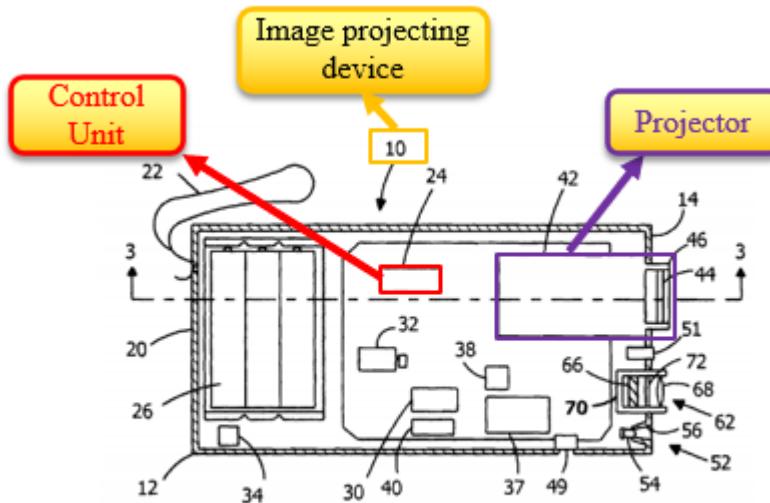


FIG. 2

Id., Annotated FIG. 2.

Additionally, *Huebner* discloses the claimed signaling. *Huebner* discloses “a central control unit 24 that controls the operation of the entire device.” *Id.*, ¶[0024]. The “projector 42” “is in operative communication with control unit 24.” *Id.*, ¶[0066]. The control unit sends video data or content to its projector system. *Id.*, ¶¶ [0124], [0125], [0144], [0172]. A POSA would have understood these communications to be “signals” because that is how device components communicate information. Ex-1003, ¶56 (citing IEEE-Wiley Dictionary, 707). Thus, a POSA would have understood that *Huebner*’s control unit conveys information via signals to other components, such as an image to a projector. Ex-1003, ¶56.

Similarly, *Huebner* discloses the claimed image data signaling. *Huebner* discloses “[t]he image projecting device includes a projector that generates an image from a control unit.” *Id.*, Abstract; *see id.*, claims 1, 9, 23. For example, *Huebner* discloses “projector 42 that is in operative communication with control unit 24 and is operable to project an image from the image projecting device 10.” *Id.*, ¶[0066]. Further, *Huebner* discloses control units that sends video data or content to its projector system. *Id.*, ¶¶ [0124], [0125], [0144], [0172]. A POSA would have understood that a video is a series of images. Ex-1003, ¶57 (citing IEEE-Wiley Dictionary, 837) (defining video as “consisting of, or pertaining to images or sequences of images.”). A POSA would have understood that video data, content, or images communicated between the processor and the projector of *Huebner*’s device corresponds to the claimed image data signaling because *Huebner*’s control unit sends video and image content and data to the projector that the projector projects. Ex-1003, ¶57.

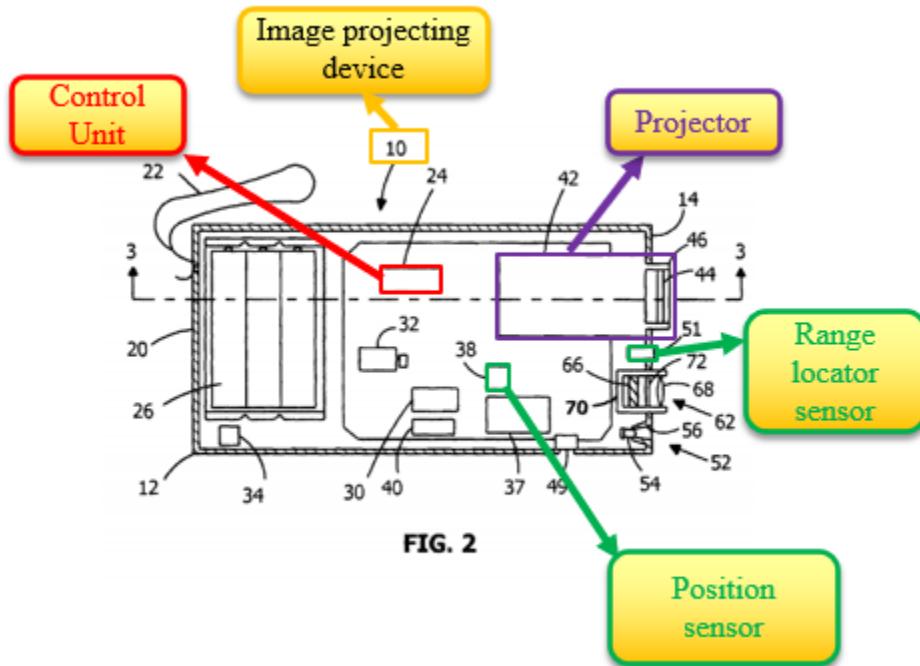
To the extent Patent Owner argues that “send[ing] video data” or “video content,” as taught by *Huebner*, does not disclose providing the claimed “image data,” a POSA would have found it obvious to send images from control unit 24 to projector 42 because the video data/content comprise single image data. Ex-1003, ¶58. For instance, *Huebner* describes displaying images throughout. *Huebner*, Abstract, ¶[0066], [0075]. And, *Huebner* discloses “project[ing] an image created

by the control unit.” *Id.*, claims 1, 9, 23. Thus, a POSA would have used the teachings of *Huebner* to send and/or display image data through the same devices and functionality for sending video data. Ex-1003, ¶58.

2. [1A] “an input to receive movement signaling associated with movement of the projector; and”

Huebner teaches this claim limitation because *Huebner* discloses a control unit (i.e., claimed processor) that receives movement signals from a position sensor and a range locator sensor inside of *Huebner*’s device. Ex-1003, ¶59.

Huebner discloses the claimed input. As shown in Fig. 2, *Huebner*’s **image projecting device** 10 including **control unit** 24 and sensors including **position sensor** 38 and **range locator sensor** 51. *Id.*, ¶¶[0064], [0066], [0075].



Id., Annotated FIG. 2.

Huebner discloses control unit 24 “controls operation of the entire device” and “is capable of operating the components” of the device. *Id.*, ¶[0060]. One component is the spatial positions sensor 38 “that is operatively connected to the control unit 24.” *Id.*, ¶[0064]. Another component is “range locator sensor 51 [that] is operatively connected to the control unit.” *Id.*, ¶[0075]. *Huebner* discloses two types of movement signaling associated with movement of the projector, as claimed. *First*, When a position sensor 38 (e.g., “a MEMS accelerometer”) “provides movement signals to the control unit 24.” *Id.*, ¶[0064] (emphasis added). These signals “provide[] information to the control unit regarding movement of the entire image projecting device 10 [(which includes a projector)] along x, y, and z axes.” *Id.*, ¶[0064].

Second, *Huebner*’s control unit 24 also reads data from a range locator sensor 51 to determine a distance between the device and the wall. *Id.*, ¶[0142]. The “range locator sensor 51 is operatively connected to the control unit, providing a means to determine the distance to the ambient surface on which the projected image resides.” *Id.*, ¶[0075]. Control unit 24 computes zoom based on the distance to the wall from range locator 51, part of image projecting device 10, and thus the information from range locator 51 corresponds to the claimed movement signaling associated with movement of the projector. *Id.*, ¶[0142]; Ex-1003, ¶63. A POSA

would have understood the communications from the range locator sensor 51 to control unit 24 to be “signaling” because that is how device components communicate information. Ex-1003, ¶63 (citing IEEE-Wiley Dictionary, 707).

A POSA would have understood that the control unit would include an input to receive these signals from position sensor 38 and range locator sensor 51 because the sensors are external to the control unit (as shown above) and communicate through a connection to the control unit. Ex-1003, ¶64; *Id.*, ¶¶[0064], [0075]. As such, a POSA would have understood that control unit 24 includes the claimed “input.” Ex-1003, ¶64.

3. [1B] “an output configured to provide image data signaling to the projector,”

Huebner teaches this claim limitation because *Huebner* discloses a control unit (i.e., claimed processor) that sends video data and content to a projector. Ex-1003, ¶64.

Huebner discloses the claimed output. As shown in Fig. 2, *Huebner* discloses an **image projecting device 10** including **control unit 24** and **projector 42**. *Id.*, ¶[0064].

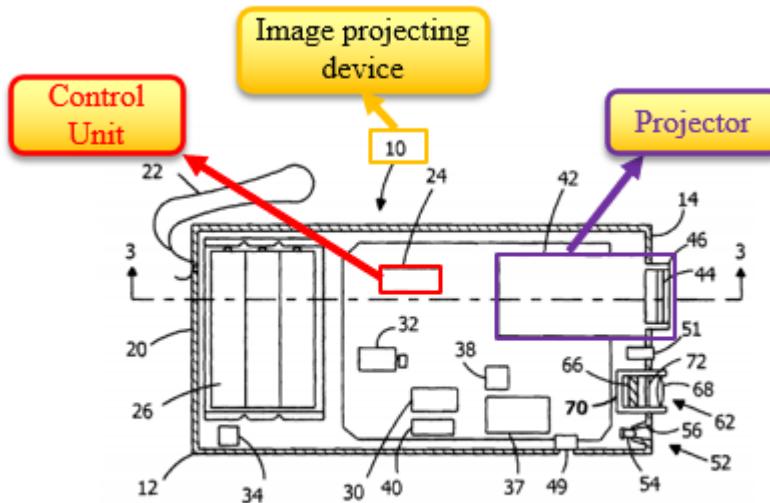


FIG. 2

Id., Annotated FIG. 2.

“The image projecting device includes a projector that generates an image from a control unit.” *Id.*, Abstract. And the “central control unit 24 [] controls the operation of the entire device.” *Id.*, ¶[0060]. Specifically, projector 42 “communicat[es] with the control unit 24 to project an image from the image projecting device 10.” *Id.*, ¶[0066]. As an example, *Huebner* discloses its “control unit sends video content to the projector causing the virtual door to open, as illustrated in FIG. 8d.” *Id.*, ¶[0144] (emphasis added). As a further example, *Huebner* discloses control units sending “video data” or “video content” to its projector system. *Id.*, ¶¶ [0124], [0125], [0172]. Because control unit 24 is a processor that sends video and image data to projector 42 for projection, a POSA

would have understood that control unit 24 discloses the claimed “output.” Ex-1003, ¶67.

Huebner also discloses the claimed providing image data signaling to the projector. *Huebner* discloses “project[ing] an image created by the control unit.” *Id.*, claims 1, 9, 23. A POSA would have understood that the control unit would include an output to send images to the projector that is external to the control unit (as shown above). Ex-1003, ¶68. A POSA would have understood that the control unit sending video data and content to the projector corresponds to the claimed “provid[ing] image data signaling to the projector,” as discussed above in Section VII.A.1, because *Huebner*’s control unit sends video and image content and data to the projector that the projector projects. Ex-1003, ¶68.

4. [1C] “and wherein the processor is configured to provide image data signaling to the projector based on received movement signaling,”

Huebner teaches this claim limitation because *Huebner* discloses a control unit (i.e., claimed processor) modifying the image based on the sensed movement signals. Ex-1003, ¶69. As discussed above, *Huebner*’s control unit 24 sending video data or content to projector 42 to display an image discloses the claimed image data signaling, Section VII.A.1, and *Huebner*’s movement signals from spatial position sensor 38 and distance information from range locator 51 disclose movement signaling, Section VII.A.2.

Huebner's processor is configured to provide image data signaling to the projector based on received movement signaling in two ways. First, for its spatial position sensor, Huebner discloses that “[b]ased upon the sensed movement signals from the spatial position sensor, the control unit can modify the image from the device to simulate the movement of the image projecting device.” Id., ¶[0008] (emphasis added). The “control unit 24 reads the output of the spatial position sensor 38 and animates the projected image accordingly.” Id., ¶[0080]. As an example, Huebner discloses that, “if the control unit determines the device is tilted with a quick upward flick of the wrist, the projected image may be revised to cause the image to perform a certain action, such as having a dog sit up on its hind legs.” Id., ¶[0081]. Second, for the range locator sensor, Huebner discloses “the projected image can zoom in and out as a player moves the device towards or away from the wall.” Id., ¶[0142].

With respect to providing “image data signaling to the projector based on movement signaling,” the ’071 patent specification describes that the processor, once movement is detected, “provides different image data signaling to the projector 2.” Id., 7:21-23; FIGS. 2b, 2c. As another example, the ’071 patent describes detecting movement and providing “image data signaling to the projector 202 that causes the projector 202 to project a magnified version of image ‘A’.” Id., 8:37-42; FIGS. 3b, 3c.

Huebner's disclosure of moving and animating an image based on movement of device 10 provides more detail than that discussed in the '071 patent. Similarly, *Huebner's* disclosure of projecting an image and the zoom necessary for the image based on movement of device 10 relative to a wall or surface provides more detail than that discussed in the '071 patent. Thus, *Huebner's* disclosures correspond to the '071 patent, and *Huebner's* moving and animating an image and zooming in and out anticipates this claim limitation. Ex-1003, ¶72.

5. [1D] “wherein the movement signaling provides an indication of one or more movement criterion of the projector,”

Huebner teaches this claim limitation because *Huebner* discloses a control unit (i.e., claimed processor) that receives movement signals from a position sensor and a range locator sensor inside of *Huebner's* device that measure position and range (i.e., claimed movement criterion), respectively. Ex-1003, ¶73.

Huebner discloses the claimed movement signaling as discussed above in Section VII.A.2, because *Huebner* discloses movement information from position sensor 38 and range locator sensor 51 (the claimed “movement signaling”) that is read by control unit 24. *Huebner* also discloses the claimed indication of one or move movement criterion of the projector because positions sensor 38 and range locator sensor 51 determines movement information that are received by control unit 24. *Huebner* discloses that its position sensor 38 determines movement and

orientation information of image projecting device 10. *Id.*, ¶¶[0064], [0066].

Huebner also discloses a range locator sensor 51 that determines distance information of image projecting device 10 to a surface. *Id.*, ¶¶[0075], [0142].

Huebner discloses that control unit 24 reads position sensor 38 and range locator sensor 51. *Id.*, ¶¶[0066], [0075]. Further, position sensor 38 “provides *movement signals* to the control unit 24.” *Id.*, ¶[0064] (emphasis added). *Huebner*’s movement and distance information from these sensors anticipates the claimed “one or more movement criterion of the projector.” Ex-1003, ¶75.

6. [1E] “the movement criterion representing one or more of displacement and movement speed of the projector, and ”

Huebner teaches this claim limitation because *Huebner* discloses a control unit (i.e. claimed processor) that reads and receives movement signals from a position sensor and a range locator, where the position sensor measures relative motion (i.e. claimed displacement, movement speed) and the range locator measures distance from a wall (i.e. claimed displacement). Ex-1003, ¶76.

This limitation requires only one of (1) displacement or (2) movement speed of the projector. *Huebner* discloses both.

Huebner discloses the claimed displacement. *Huebner*’s position sensor 38, an accelerometer, “determine[s] the *relative motion* of the device in 3D space as the player moves the device in an arc, zigzag, or a straight motion.” *Id.*, ¶¶[0064],

[0080] (emphasis added). The accelerometer provides information “regarding movement of the entire image projecting device 10 along x, y, and z axes.” *Id.*, ¶[0064]. For example, “a quick, upward flick of the wrist” results in the image performing a certain action. *Id.*, ¶[0080]. A POSA would have understood that information regarding movement along x, y, and z axes would include displacement, Ex-1003, ¶78, because relative motion in 3D space, such as an arc, zigzag, or straight motion, is detected by position sensor 38. *Id.*, ¶[0064]. The information from position sensor 38 includes information regarding movement along x, y, and z axes which would include, for example, determining where the device is at one point along one axis and then later determining where the device is along another point along the same axis, which is displacement. Ex-1003, ¶78. Thus, a POSA would have understood that the taught “relative motion” and information regarding movement along axes discloses the claimed “displacement.” Ex-1003, ¶78.

As further displacement examples, *Huebner* discloses a range locator sensor 51 that determines “the distance to the wall” or other surface. *Id.*, ¶¶[0075], [0142]. *Huebner* also discloses an emitter 52 and image sensor 62, also including within image projecting device 10, that use the light path to determine the distance to the projection surface. *Id.*, ¶¶[0007], [0075]. A POSA would have understood that the

distance to the wall or other projecting surface corresponds to the claimed “displacement.” Ex-1003, ¶79.

Huebner discloses the claimed movement speed. *Huebner* discloses position sensor 38, including a MEMS accelerometer, “provides information to the control unit regarding movement of the entire image projecting device 10 along x, y and z axes.” *Id.*, ¶[0064]. Further, “the x, y, z axis spatial position sensor 38, the device 10 can determine the relative motion of the device in 3D space as the player moves the device in an arc, zigzag, or a straight motion.” *Id.*, ¶[0080]. Such motion may include “a quick, upward flick of the wrist.” *Id.*, ¶[0081]. A POSA would have understood that information regarding movement along x, y, and z axes would include speed, Ex-1003, ¶80, because relative motion in 3D space, such as a “quick” flick of the wrist, is detected by position sensor 38. *Id.* A POSA would have understood that information regarding relative motion would include speed because speed is a measure of motion. Ex-1003, ¶80. As such, the taught “relative motion” corresponds to the claimed “movement speed.” Ex-1003, ¶80. If Patent Owner argues that relative motion does not disclose “movement speed,” a POSA would have found it obvious to measure speed from the movement information from position sensor 38 because speed is one of a finite number of predictable measures of motion. Ex-1003, ¶80.

7. [1F] “wherein the processor is configured to discriminate a movement criterion and to provide associated image data signaling to project associated image data.”

Huebner teaches this claim limitation because *Huebner* discloses a control unit (i.e., claimed processor) that reads and receives movement signals from a position sensor and a range locator sensor, and the control unit modifies the projected image in response to the movement signals based on the information from the sensors. Ex-1003, ¶81.

Huebner discloses the claimed image data signaling as discussed above in Section VII.A.2 because *Huebner* discloses modifying, moving, and animating images based on received movement signals from the position sensor and the range locator sensor.

The '071 patent discloses that processor 1 “associate[s] particular image data with a particular movement criterion represented/indicated by received movement signaling.” *Id.*, 5:37-41. Other than the claim language, this is the only disclosure of the '071 patent for the claimed “discriminate a movement criterion.”

Huebner discloses the claimed “processor configured to discriminate a movement criterion.” For the spatial position sensor, *Huebner* discloses that “[b]ased upon the sensed movement signals from the spatial position sensor, the control unit can modify the image from the device to simulate the movement of the image projecting device.” *Id.*, ¶[0008] (emphasis added). The control unit “reads

the output of the spatial position sensor 38 and animates the projected image accordingly.” *Id.*, ¶[0080]. “For example, if a player sweeps or moves the device along the wall in a left horizontal direction, the projected image moves in an animated manner to the left.” *Id.* A POSA would have understood that the control unit receives the movement information from the spatial position sensor 38, corresponding to the claimed discriminating a movement criterion. Ex-1003, ¶84.

For the range locator sensor, *Huebner* discloses that the control unit “reads the range locator 51, determines the distance to the wall, and computes the necessary logical image zoom required to maintain the scale of the projected image.” *Id.*, ¶[0142]. For example, “the device updates the projected image every 1/3 second with the appropriate image zoom relative to the projection distance.” *Id.* By reading the range locator and computing (and recomputing) image zoom, *Huebner* discloses providing an image based on a movement because it computes the image zoom based on movement relative to distance of the device from the wall. Ex-1003, ¶85. A POSA would have understood that the control unit reads the range locator sensor 51, corresponding to the claimed discriminating a movement criterion. Ex-1003, ¶85.

Huebner further discloses the claimed processor is configured to provide associated image data signaling to project associated image data. As discussed above, *Huebner* discloses that “[b]ased upon the sensed movement signals from

the spatial position sensor, the control unit can modify the image from the device to simulate the movement of the image projecting device.” Id., ¶[0008] (emphasis added). The control unit “reads the output of the spatial positions sensor 38 and animates the projected image accordingly.” *Id.*, ¶[0080]. For example, “if a player sweeps or moves the device along the wall in a left horizontal direction, the projected image moves in an animated manner to the left.” *Id.*, ¶[0080]. The control unit also “reads the range locator 51, determines the distance to the wall, and computes the necessary logical image zoom required to maintain the scale of the projected image.” *Id.*, ¶[0142]. Because control unit receives movement signals from and reads spatial positions sensor and range locator sensor, and then moves, animates, or zooms in and out of an image in response to the movement, *Huebner* discloses providing the claimed associate image data signaling to project associated image data. Ex-1003, ¶86.

B. **[Claim 2] A processor according to claim 1, wherein the particular image data for a particular movement criterion corresponds to an image associated with one or more of a particular function within an application, or one of a plurality of different applications, to be projected by the projector.**

Huebner teaches this claim limitation because *Huebner* discloses a control unit (i.e., claimed processor) that receives movement signals from a position sensor and reads a range locator sensor and projects and animates an image based on the received information. Ex-1003, ¶87.

Huebner discloses the claimed particular movement criterion. As discussed above in Section VII.A.7, the control unit reads both spatial position and range movement information from the position sensor and range locator sensor (the claimed “movement criterion”).

Huebner further discloses the claimed particular image data. As discussed above in Section VII.A.7, control unit 24 modifies an image based on information from spatial position sensor 38 and determines a zoom based on information from range locator sensor 51. As another example, the control unit can “*cause the image to perform certain functions* depending upon the movement of the track ball 36 with player’s finger.” *Id.*, ¶[0080] (emphasis added).

Huebner discloses the claimed application. *Huebner* discloses that its devices “10a, 10b could be programmed to display any type of image desire.” *Id.*, ¶[0077]. *Huebner*’s devices are for “playing games and other interactive opportunities.” *Id.*, ¶[0004]. An application is “[a] computer program designed to enable end users to perform specific tasks.” IEEE-Wiley Dictionary, 33. A POSA would have understood that *Huebner*’s devices 10a, 10b are programmed to display images, and specifically based on the movement of devices 10a, 10b (e.g., changing zoom, animating or modifying an image, or performing certain functions). Ex-1003, ¶90. For each specific task performed, and resultant displayed image, control unit 24 would have been programmed, and such programming

would be within an application for playing games or other interactive opportunities. Ex-1003, ¶90.

As examples, *Huebner* explains that, “if a player sweeps or moves the device along the wall in a left horizontal direction, the projected image moves in an animated manner to the left.” *Id.*, ¶[0080]. As a further example, *Huebner* discloses “if the control unit determines the device is tilted with a quick upward flick of the wrist, the projected image may be revised to cause the image to perform a certain action, such as having a dog sit up on its hind legs.” *Id.*, ¶[0081].

This limitation requires only one of projecting an image associated with (1) one or more of a particular function within an application or (2) an image associated with one of a plurality of different applications. *Huebner* discloses both.

Huebner discloses the claimed image associated with one or more of a particular function within an application to be projected by the projector. Because *Huebner*’s control unit 24 is programmed to display specific images based on specific movements, a POSA would have understood that the specific images based on movements described by *Huebner* correspond to computer programs designed to enable end users to perform specific tasks (i.e., applications). Ex-1003, ¶93. The above examples demonstrate *Huebner*’s disclosure of this claim including, for example, a dog sitting up (i.e. the claimed image being displayed) based on a quick, upward flick of the wrist (i.e. the claimed particular function

within an application). *Id.*, ¶¶[0076], [0081]. *Huebner* also discloses the claimed image associated with “one of a plurality of different applications” to be projected by the projector. Because *Huebner*’s control unit is programmed to display specific images based on specific movements for “games and other interactive opportunities,” *Huebner* discloses that one image may be associated with one game or interactive opportunity of a number of games or interactive opportunities. This is consistent with *Huebner*’s disclosure of a number of games or interactive opportunities, for example, projecting cats and dogs, *id.*, ¶[0087], FIG. 4A, sabers and dragons, *id.*, ¶[0145], FIG. 11, and spaceships and lasers. *Id.*, ¶[0172], FIG. 20. Each of these displays changes or animates based on movement of device 10, and thus *Huebner*’s disclosure corresponds to the claimed particular function within one of a plurality of different applications. Ex-1003, ¶94.

C. [Claim 3] A processor according to claim 1, wherein the particular image data for a particular movement criterion corresponds to an image associated with a particular function within an application to be projected by the projector.

Huebner teaches this claim for the same reasons discussed above in claim 2 Section VII.B because there is no patentable distinction between claim 3 and claim 2, as discussed in Mr. Gray’s declaration. Ex-1003, ¶¶95-96.

D. [Claim 4] A processor according to claim 1, wherein the particular image data for a particular movement criterion

corresponds to an image associated with one of a plurality of different applications to be projected by the projector.

Huebner teaches this claim same reasons discussed above in claim 2 in Section VII.B because there is no patentable distinction between claim 4 and claim 2, as discussed in Mr. Gray's declaration. Ex-1003, ¶¶97-98.

E. [Claim 5] A processor according to claim 1, wherein the particular image data for a particular movement criterion corresponds to an image associated with part of a larger image, and wherein movement of the projector provides for scanning across to and projection of respective parts of the larger image.

Huebner teaches this claim limitation because *Huebner* discloses a device that projects an image onto a larger display area, provided by an external device, and the movement of the device changes the position of the image and projects the image as part of the larger display area. Ex-1003, ¶99.

Huebner discloses the claimed "particular image data for a particular movement criterion," as discussed above in Section VIII.B, because *Huebner* discloses changing, modifying, and zooming in and out of an image based on movement.

Huebner also discloses an image associated with part of a larger image. *Huebner* discloses that "images from more than one image processing device can be synchronized to provide a single, coherent image result." *Id.*, ¶[0162]. Its device 10 may connect, via internet network 112, to "an external device 110," including

an “additional graphic display, perhaps having greater display area and resolution.” *Id.*, ¶¶[0137]-[0138]. Device 10 can then project an image that interacts with the external device 110’s video display. *Id.*, ¶[0139]. For example, when pointed at the external device 110’s larger display area, device 10 projects an image that is part of the larger display area. *Id.*

Huebner also discloses movement of the projector provides for scanning across to and projection of respective parts of the larger image. *Huebner* device 10 can project an image that interacts with the external device 110’s video display. *Id.*, ¶[0139]. For example, “if the device’s projected image was a dog, and the video display subject matter was a garden of flowers, a player may sweep the hand-held projector device in a horizontal motion, and see an animated dog go rollicking through the garden of flowers.” *Id.* In this example, the dog (the claimed “image associated with part of a larger image”) moves across the garden of flowers (the claimed “larger image”) based on the sweeping of the device (the claimed “movement of the projector”). Ex-1003, ¶102. A POSA would have understood that moving and animating the dog based on the sweeping of *Huebner*’s device, because projection of the dog image is from the device and onto the larger display area provided by external device 110, corresponds to the claimed “projector provides for scanning across to and projection of respective parts of the larger image.” Ex-1003, ¶102.

F. [Claim 7] A processor according to claim 5, wherein the movement of the projector provides for continuous scanning across to and projection of respective parts of the larger image.

Huebner teaches this claim limitation because *Huebner* discloses a device that projects an image onto a larger projection area, provided by an external device, and the movement of the device changes the position of the image and projects the image as part of the larger display area. Ex-1003, ¶103.

Huebner discloses the claimed “movement of the projector provides for continuous scanning across to and projection of respective parts of the larger image.” As discussed above for claim 5 in Section VII.E, *Huebner* discloses that “if the device's projected image was a dog, and the video display subject matter was a garden of flowers, a player may *sweep* the hand-held projector device in a horizontal motion, and see an animated dog go rollicking through the garden of flowers.” *Id.* (emphasis added). In this example, the dog (the claimed “image associated with part of a larger image”) moves across the garden of flowers (the claimed “larger image”) based on the sweeping of the device (the claimed “movement of the projector provides for continuous scanning across to and projection of respective parts of the larger image”). A POSA would have understood that *Huebner*'s projection of the image such as the dog would be maintained by the image projecting device to display a constant image as the image projecting device moves (the claimed “continuous scanning across to and

projection”), for example, when the dog rollicks as it moves on the larger image of the garden of flowers. Ex-1003, ¶104. A POSA would have understood that sweeping motion of *Huebner*’s device and resulting movement of the dog image as part of the larger display area corresponds to the claimed “continuous scanning across to and projection of respective parts of the larger image.” Ex-1003, ¶104.

G. [Claim 8] A processor according to claim 1, wherein the projector is a micro-projector.

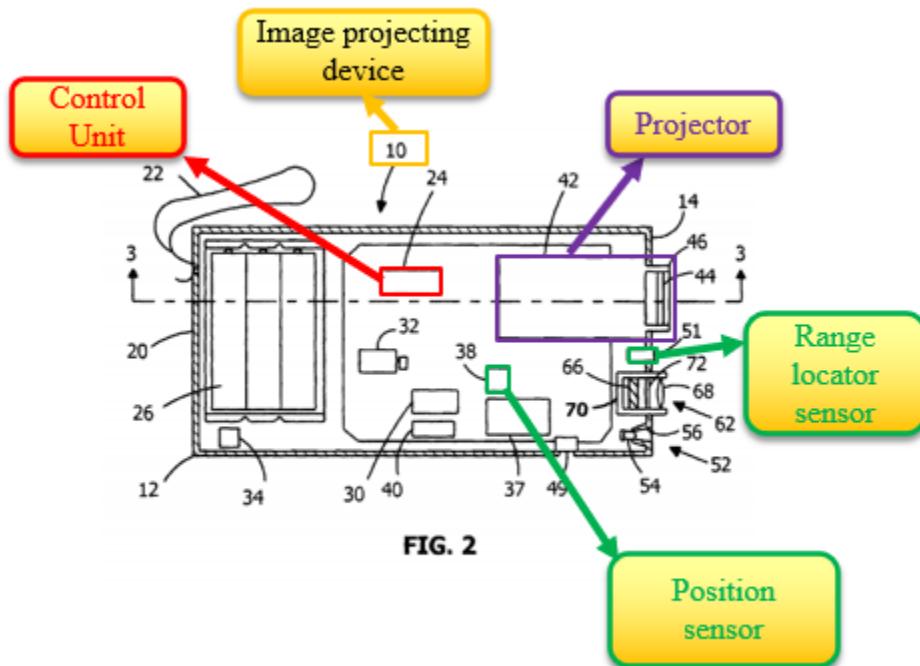
Huebner teaches this claim limitation because *Huebner* discloses its image projecting device is a hand-held projector device. *Huebner*, ¶[0058] (describing a device “held in the hand”); *id.*, ¶[0004] (describing “a hand held device”). Ex-1003, ¶105. The ’071 patent describes a “micro-projector” as “a smaller projecting unit than is found in, for example, home theatre size projectors” and “is capable of being easily moved by a user’s hand, in that it is hand portable.” Ex-1001, 4:66-5:3.

H. Claim 9

1. [9A] An apparatus comprising the processor of claim 1, and a movement sensor configured to detect movement of the apparatus and/or a projector, and

Huebner teaches this claim limitation because *Huebner* discloses a control unit (i.e., claimed processor) that includes a position sensor within the housing of an image projecting device that determines relative motion. Ex-1003, ¶108.

Huebner discloses the claimed apparatus and that the apparatus includes the claimed movement sensor. Fig. 2 of *Huebner* shows an **image projecting device** 10 including **control unit** 24, **projector** 42, and sensors including **position sensor** 38. *Id.*, ¶¶[0064], [0066], [0075].



“regarding movement of the entire image projecting device 10 along x, y and z axes.” *Id.*, ¶[0064]. *Huebner* discloses detecting movement of both the apparatus and a projector because “image projecting device 10 includes a projector 42.” *Id.*, ¶[0066]. Because image projecting device 10 includes control unit 24, projector 42, and position sensor 38, a POSA would have understood that position sensor 38 anticipates the claimed “movement sensor configured to detect movement of the apparatus and/or a projector.” Ex-1003, ¶111.

2. [9B] wherein the movement sensor is configured to provide corresponding movement signaling to the processor.

Huebner teaches this claim limitation because *Huebner* discloses a control unit that receives movement signals from a position sensor. Ex-1003, ¶112.

Huebner discloses the claimed movement signaling as discussed above in Section VII.A.2, because control unit 24 receives movement signals from and reads spatial positions sensor 38 and range locator sensor 51. Ex-1003, ¶113.

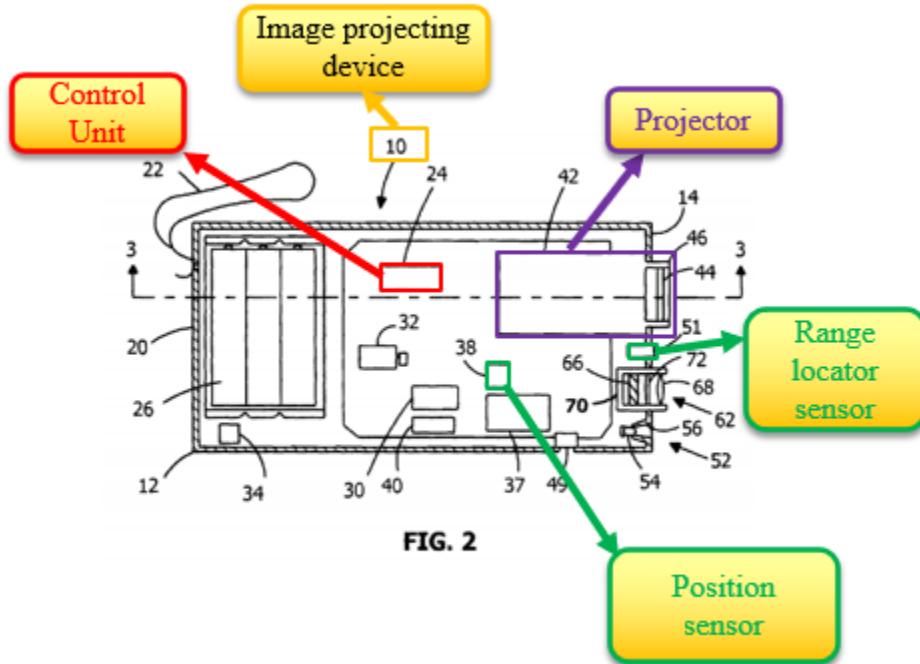
Huebner discloses the claimed movement sensor is configured to provide corresponding movement signaling to the processor because *Huebner* discloses that its “image projecting device can also include a spatial positions sensor that is mounted within the housing of the image projected device and is operable to generate a movement signal received by the control unit that is based upon the movement of the housing.” *Id.*, ¶[0008] (emphasis added). *Huebner* further

discloses its control unit 24 “reads the output of the spatial positions sensor 38 and animates the projected image accordingly.” *Id.*, ¶[0080]. Reading spatial sensor 38 anticipates the claimed “the movement sensor is configured to provide corresponding movement signaling to the processor.” Ex-1003, ¶114.

I. Claim 10

1. [10A] The apparatus of claim 9, wherein: the apparatus is a projector, or the apparatus comprises a projector; and

Huebner discloses the claimed apparatus is a projector or the apparatus includes a projector. Fig. 2 of *Huebner* shows an image projecting device 10 including projector 42. *Id.*, ¶¶[0064], [0066], [0075].



Id., Annotated FIG. 2.

Because it includes projector 42, *Huebner's* image projecting device 10 discloses the claimed “apparatus comprises a projector.”

2. [10B] the movement sensor is configured to detect movement of the projector.

Huebner discloses the claimed movement sensor is configured to detect movement of the projector because *Huebner* discloses that its “image projecting device can also include a spatial positions sensor that is mounted *within the housing of the image projected device* and is operable to generate a movement signal received by the control unit *that is based upon the movement of the housing*.” *Id.*, ¶[0008] (emphasis added). *Huebner* discloses its image projecting device housing includes projector 42. *Id.*, ¶[0066]; FIG. 2. Spatial sensor 38 generating a movement signal based on the movement of the image projecting device housing corresponds to the claimed “movement sensor is configured to detect movement of the projector.” Ex-1003, ¶118.

J. [Claim 11] The apparatus of claim 9, wherein the apparatus is a module for a projector.

Huebner discloses the claimed apparatus is a module for a projector. *Huebner* discloses that its device 10 “is a standalone device.” *Huebner*, ¶[0138]. Further, *Huebner* discloses “it is contemplated that the images from more than one image processing device can be synchronized to provide a single, coherent image result.” *Id.*, ¶[0139]. And, its device 10 may connect, via internet network 112, to

“an external device 110,” including an “additional graphic display, perhaps having greater display area and resolution.” *Id.*, ¶¶[0137]-[0138]. Device 10 can also project an image that interacts with the external device 110’s video display. *Id.*, ¶[0139]. A POSA would have understood that the external device 110’s greater display area could be a projection, as *Huebner* discloses images from two projectors interacting with regards to device 10a and a second device 10b. *Id.*, ¶[0078]; Ex-1003, ¶120. In this case, image projecting device 10 including projector 42, position sensor 38, and control unit 24, is a standalone device (the claimed “module”) that connects via the internet to the projector of external device 110 (the claimed “projector”). Ex-1003, ¶120.

K. Claim 13

Huebner teaches this claim for the reasons set forth above in Sections VII.A.1-VII.A.7 for claim 1. The limitations of claim 13 are substantially similar to those of claim 1, except that claim 13 is a “method of” performing the same functionality claimed in claim 1. Ex-1003, ¶122 (comparing claims); *see Smart Sys. Innovations, LLC v. Chi. Transit Auth.*, 873 F.3d 1364, 1368 n.7 (Fed. Cir. 2017) (quoting *Accenture Glob. Servs., GmbH v. Guidewire Software, Inc.*, 728 F.3d 1336, 1344 (Fed. Cir. 2013), which determined that “[b]ecause the system claim and method claim contain only minor differences in terminology but require

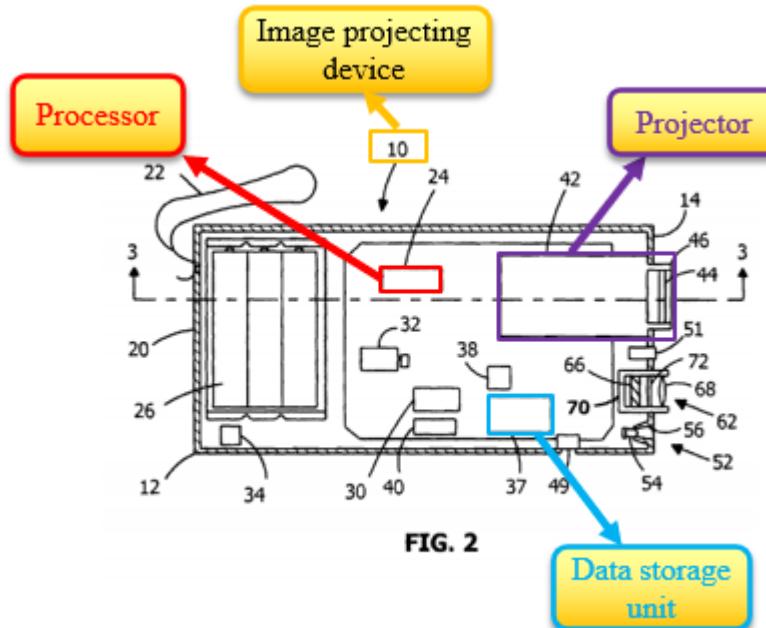
performance of the same basic process, they should rise or fall together.” (citation, brackets, and internal quotation marks omitted)).

L. Claim 14

Huebner renders obvious claim 14 for the reasons set forth above in Sections VII.A.1-VII.A.7 for claim 1. Except for claim [14p] discussed below, claim 14 is a method that claims program code including substantially similar limitations as those performed by the processor of claim 1 and any differences of limitation in claims [14p] are rendered obvious. Ex-1003, ¶125 (comparing claims); *see Smart Sys. Innovations, LLC*, 873 F.3d at 1368 n.7 (Fed. Cir. 2017).

1. [14p] **A computer readable medium comprising computer program code configured to, when executed by one or more processors, cause an apparatus to perform at least:**

Huebner discloses the claimed computer readable medium. Fig. 2 of *Huebner* shows an **image projecting device 10** including **control unit 24** and **data storage unit 37**. *Id.*, ¶¶[0061], [0064].

*Id.*, Annotated FIG. 2.

Its “data storage unit 37” is coupled to control unit 24 “enabling the reading and writing of data during operation.” *Id.*, ¶[0061]. The “storage unit includes dynamic memory along with a hard drive, disk player, or flash memory cartridge, although other kinds of data storage are clearly contemplated.” *Id.*

Huebner discloses the claimed processor. *Huebner* discloses that its “control unit 24 is a microprocessor.” *Id.*, ¶[0060]. A POSA would have understood that a microprocessor is a processor. Ex-1003, ¶129.

Huebner discloses the claimed apparatus. *Huebner* discloses image projecting device 10 that includes other components such as projector 42 and control unit 24. *Id.*, ¶¶[0061], [0064]; FIG. 2.

Huebner discloses the claimed computer program code executed by one or more processors. *Huebner* discloses that its devices “could be programmed to display any type of image desired.” *Id.*, ¶[0076]. *Huebner*’s control unit 24 corresponds to the claimed “one or more processors” that can be programmed and *Huebner*’s data storage unit 37 corresponds to the claimed “a computer readable medium.” A POSA would have understood that *Huebner*’s programs correspond to the claimed “computer program code,” because control unit 24 is a microprocessor that operates the other components of image projecting device 10. Ex-1003, ¶130. A POSA would have found it obvious that the program to cause the control unit 24 to operate projector 42, among other operations, would be stored on data storage unit 37 or the other types of dynamic memory disclosed by *Huebner*. Ex-1003, ¶130.

A POSA would also have understood that *Huebner*’s operation of other components by control unit 24 discloses the claimed computer program code executed by one or more processors because a “processor” is “[t]he portion of a computer which has the necessary circuits to interpret and execute instructions, and to control all other parts of the computer.” IEEE-Wiley Dictionary, 605. A POSA would have understood that interpreting and executing instructions correspond to the claimed computer program code because computer program code is a list of instructions to perform functions of a computer. Ex-1003, ¶131.

VIII. GROUND 2: CLAIMS 1-14 ARE UNPATENTABLE OVER *DE HAAN*

De Haan anticipates every element of claims 1-5, 8-11, 13, and 14. Ex-1003, ¶132. *De Haan* anticipates and/or renders obvious every element of claims 6-7, and 12.

A. Claim 1

De Haan anticipates claim 1. Ex-1003, ¶133.

1. [1p]

Should the preamble be limiting, *De Haan* teaches it because *De Haan* discloses a controller that includes a processor that operates other components of a projecting device, including instructions to operate, where one of the components is a projector that projects images. Ex-1003, ¶134.

De Haan discloses the claimed processor. *De Haan* discloses that its controller 315 includes a processor. *Id.*, ¶[0054]. Specifically, *De Haan* discloses: “Controller 315 may include a component that interprets and executes instructions to control one or more other components of device 105.” *Id.*, ¶[0054].

De Haan also discloses the claimed projector. *De Haan* discloses “projecting, by a device, content on a surface.” *De Haan*, Abstract. For example, as shown in Figure 2 and Figure 3, *De Haan* discloses device 105 including projector 305 and controller 315. *Id.*, ¶¶[0037], [0050]. Projector 305 “may include a component capable of projecting images.” *Id.*, ¶[0051].

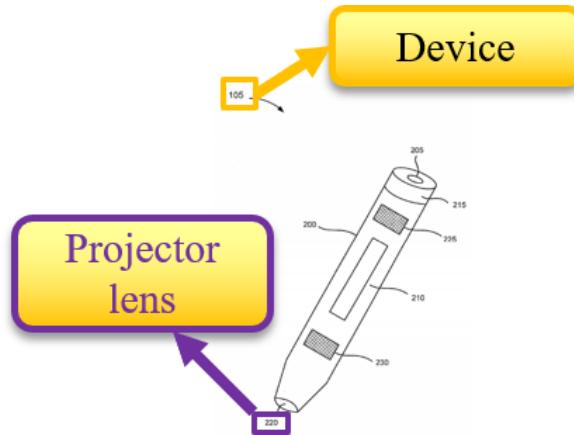


Fig. 2

Id., FIG. 2 (annotated).

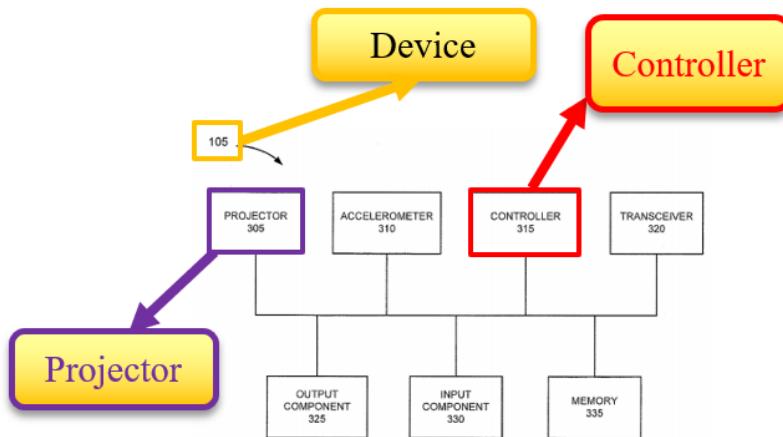


Fig. 3

Id., Annotated FIG. 2.

De Haan discloses the claimed processor for providing image data signaling to a projector. A POSA would have understood that a “signal” conveys information. Ex-1003, ¶137 (citing IEEE-Wiley Dictionary, 707). Controller 315 controls other components such as projector 305. *Id.*, ¶¶[0055]-[0056]. As an example, “controller 315 may determine compensation information based on the

movement information so that content projected by projector 305 remains relatively stable.” *Id.*, ¶[0056]. Because controller 315 determines the compensation information so that projector 305 can use it, a POSA would have understood that controller 315 provides the compensation information, relating to the stable image to be projected, to projector 305. Ex-1003, ¶137. A POSA would have understood that the control of projector 305 occurs through conveying information from controller 315 to projector 305, such as compensation information. Ex-1003, ¶137.

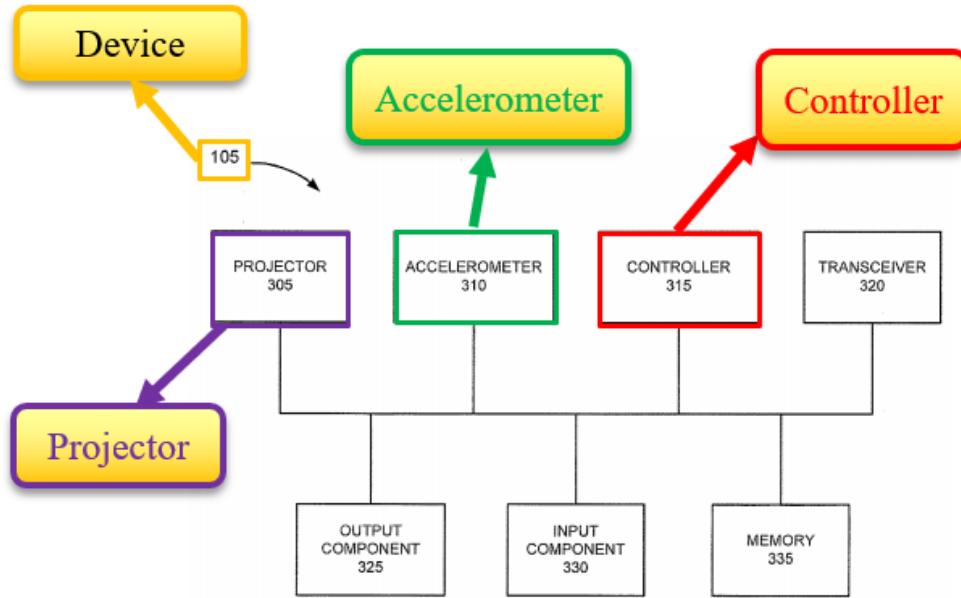
As another example, *De Haan* discloses several operations performed by device 105, *id.*, ¶¶[0065]-[0073], that are controlled by controller 315. *Id.*, ¶[0080]. A POSA also would have understood that the operations of device 105 to be conducted by a controller such as controller 315 because controller 315 controls other components of device 105. *Id.*, ¶[0054]. These operations include projecting images based on interactions with the projected content, such as scrolling, highlighting, dragging-and-dropping, navigating in a menu, and so on. *Id.*, ¶¶[0065], [0068]. A POSA would have understood that *De Haan*’s controller operating its projector and processing compensation information and performing other operations of *De Haan*’s device corresponds to the claimed “processor for providing image data signaling to a projector.” Ex-1003, ¶138.

De Haan discloses the claimed image data signaling representing an image to be projected by the projector. As discussed above, compensation information determined by controller 315 is used by projector 305 to project a stable image. *Id.*, ¶[0056]. Additionally, operations such as scrolling, highlighting, dragging-and-dropping, navigating in a menu, etc., result in images reflecting those interactions. *Id.*, ¶¶[0065], [0068]. A POSA would have understood that the images projected as a result of this compensation information and operations. Ex-1003, ¶139.

2. [1A]

De Haan teaches this claim limitation because *De Haan* discloses a controller (i.e., claimed processor) that receives gesture and non-gesture information, including, for example, path and speed information, from an accelerometer inside of *De Haan*'s device. Ex-1003, ¶140.

De Haan discloses the claimed input. Fig. 3 of *De Haan* shows a device 105 including controller 315 and accelerometer 310. *Id.*, ¶[0050].

**Fig. 3**

Id., Annotated FIG. 3.

The controller 315 may receive gesture and non-gesture “information from accelerometer 310,” including “trace or path information, an acceleration measurement, a speed measurement, and other types of information” related to movement of device 105. *Id.*, ¶¶[0056]-[0057], [0064]. A POSA would have understood that *De Haan*’s controller 315 receiving gesture information from the accelerometer and using the gesture information corresponds to the claimed “movement signaling associated with movement of the projector.” Ex-1003, ¶142. Because controller 315 receives information, a POSA would have understood that it includes the claimed input. Ex-1003, ¶142. Additionally, because controller 315 is a separate, external component from accelerometer 310, as shown in FIG. 3, a

POSA would have understood that controller 315 includes the claimed “input.”

Ex-1003, ¶142.

3. [1B]

De Haan teaches this claim limitation because *De Haan* discloses a controller (i.e., claimed processor) that controls other components of a device, including a projector, using gesture/non-gesture information to determine image compensation information that is used by the projector. Ex-1003, ¶143.

De Haan discloses the claimed output. Controller 315 controls the components of device 105 such as projector 305. *Id.*, ¶[0066]. The “controller 315 may determine compensation information based on the gesture information” or the “non-gesture information” and “projector 305 may project an image based on the compensation information.” *Id.*, ¶¶[0056]-[0057]. Because controller 315 is a processor that determines compensation information used by projector 305, a POSA would have understood that control unit 24 discloses the claimed output. Ex-1003, ¶144. Additionally, because controller 315 is a separate, external component from projector 305, as shown in FIG. 3, a POSA would have understood that controller 315 includes the claimed “output.” Ex-1003, ¶144.

De Haan also discloses the claimed providing image data signaling to the projector. A POSA would have understood that *De Haan*’s controller 315 providing compensation information to projector 305 and performing other

operations of device 105 that result in images being projected corresponds to the claimed “provid[ing] image data signaling to the projector,” as discussed above in Section VIII.A.1. Ex-1003, ¶145.

4. [1C]

De Haan teaches this claim limitation because *De Haan* discloses its control unit (i.e., claimed processor) modifying an image based on the movement information (i.e., claimed movement signaling) received from an accelerometer. Ex-1003, ¶146.

De Haan discloses the claimed image data signaling as discussed above in Section VIII.A.1 because *De Haan* discloses its controller providing compensation information to a projector and projecting images based on other operations. *De Haan* discloses the claimed movement signaling as discussed above in Section VIII.A.2 because *De Haan* discloses a controller that receives gesture and non-gesture information related to movement of a device.

With respect to providing “image data signaling to the projector based on movement signaling,” the ’071 patent specification describes that the processor, once movement is detected, “provides different image data signaling to the projector 2.” *Id.*, 7:21-23; FIGS. 2b, 2c. *De Haan* discloses the claimed processor is configured to provide image data signaling to the projector based on received movement signaling. *De Haan*’s “controller 315 may determine compensation

information based on the gesture information” and “projector 305 may project an image based on the compensation information.” *Id.*, ¶[0056]. *De Haan* discloses, for example “[c]ontroller 315 may determine compensation information *based on the movement information* so that content projected by projector 305 remains relatively stable” *Id.*, ¶[0056] (emphasis added). The same is true for non-gesture information. *Id.*, ¶[0057]. As a further example, the device may include components to “detect an orientation of the device, and the determining the operation that corresponds to the movement may be *based on the orientation* of the device.” *Id.*, ¶[0015] (emphasis added). Thus, the compensation information and other operations based on movement of the device determined and performed by *De Haan*’s controller 315 anticipates the claimed providing image data signaling to the projector based on received movement signaling. Ex-1003, ¶149.

5. [1D]

De Haan teaches this claim limitation because *De Haan* discloses a control unit (i.e., claimed processor) that receives gesture/non-gesture information from an accelerometer inside of *De Haan*’s device that measures, for example, speed and path information. Ex-1003, ¶150.

De Haan discloses the claimed movement signaling as discussed above in Section VIII.A.2 because *De Haan* discloses its controller receiving gesture and non-gesture information relating to movement of a device from an accelerometer.

De Haan also discloses the claimed indication of one or more movement criterion of the projector. Accelerometer 310 “may include a 3-axis or a 2-axis accelerometer,” and “may include one or more gyroscopes for measuring and/or determining an orientation of device 105 and/or other types of gesture-based detectors.” *Id.*, ¶[0053]. Specifically, *De Haan* discloses that information from its accelerometer 310 may include “trace or path information, an acceleration measurement, a speed measurement, and other types of information” related to movement of device 105. *Id.*, ¶¶[0056]-[0057]. This information includes movement information (i.e., claimed indication of one or more movement criterion of the projector). Ex-1003, ¶151.

6. [1E]

De Haan teaches this claim limitation because *De Haan* discloses a controller (i.e., claimed processor) within a device that receives movement information from an accelerometer, where the accelerometer measures, for example, speed and path information caused by movement of the device. Ex-1003, ¶152.

According to this limitation, only one of (1) displacement or (2) movement speed of the projector need be disclosed in the prior art to anticipate this limitation. Nevertheless, *De Haan* discloses both displacement and movement speed.

De Haan discloses the claimed displacement because *De Haan* discloses accelerometer 315 that provides gesture or non-gesture information that includes “length of movement,” and “trace or path information.” *Id.*, ¶¶[0056], [0057]. A POSA would have understood that length of movement corresponds to the claimed “displacement,” because displacement is a distance from one point to another. Ex-1003, ¶154. A POSA would have understood that the measuring trace or path information would include determining the difference of *De Haan*’s device position at one point and the position of the device at another point, corresponding to the claimed “displacement.” Ex-1003, ¶154.

De Haan discloses the claimed movement speed, because *De Haan* discloses accelerometer 315 measures “speed” “caused by the movement of device 105.” *Id.*, ¶[0053]. Accelerometer 315 provides gesture or non-gesture information that includes “speed.” *Id.*, ¶¶[0056]-[0057]. As such, the taught “speed” corresponds to the claimed “movement speed.” Ex-1003, ¶155.

De Haan discloses the claimed movement criterion representing one or more of displacement and movement speed of the projector, because *De Haan* discloses its accelerometer 315 is within device 105 and measures trace or path information and speed of device 105. *Id.*, ¶¶[0056]-[0057].

7. [1F]

De Haan teaches this claim limitation because *De Haan* discloses a controller (i.e., claimed processor) that distinguishes movement information from an accelerometer, and the controller uses the gesture/non-gesture information to determine image compensation information that is used by the projector in projecting an image. Ex-1003, ¶157.

De Haan discloses the claimed image data signaling as discussed above in Section VIII.A.1 because *De Haan* discloses its controller providing compensation information to a projector and projecting images based on other operations.

The '071 patent describes that its processor 1 “associate[s] particular image data with a particular movement criterion represented/indicated by received movement signaling.” *Id.*, 5:37-41. Other than the claim language, this is the only disclosure of the '071 patent that relates to the claimed “discriminate a movement criterion.”

De Haan discloses the claimed “processor configured to discriminate a movement criterion.” *De Haan* discloses that “[c]ontroller 315 may determine compensation information *based on the movement information.*” *Id.*, ¶[0056] (emphasis added). Specifically, *De Haan* discloses its “[c]ontroller 315 may *determine compensation information* based on the non-gesture [or the gesture] information so that the projected content may be stabilized on a surface.” *Id.*,

¶[0056]-[0057] (emphasis added). Because controller 315 receives gesture and non-gesture information, including path information and speed measurements, controller 315 corresponds to the claimed “wherein the processor is configured to discriminate a movement criterion.” Ex-1003, ¶160.

As another example, *De Haan* discloses “detecting a movement of the device, determining an operation that corresponds to the movement and interacts with the content, and performing the operation.” *De Haan*, ¶[0003]. Additionally, “a movement of device 105 based on a user's gesticulation *may be correctly interpreted* by device 105 and an operation corresponding to the movement of device 105 may be performed.” *Id.*, ¶[0066] (emphasis added).

De Haan further discloses the claimed processor is configured to provide associated image data signaling to project associated image data. *De Haan*'s device may also determine if a gesture was performed and then perform “an operation that corresponds to the movement [of the device] and interact with the content when it is determined that the movement includes the gesture.” *Id.*, ¶[0004]. The operation might be “scrolling, selecting, entering data, highlighting, dragging-and-dropping, or navigating in a menu.” *Id.*, ¶¶[0006], [0065], [0081], [0112]. The performing the operation is “based on the at least one of detected acceleration or detected speed.” *Id.*, ¶[0008]. For example, “the user may make a gesture to scroll.” *Id.*, ¶¶[0037], [0081].

B. [Claim 2]

De Haan teaches this claim limitation because *De Haan* discloses a controller that receives movement information from an accelerometer and projects an indicator and scrolls across an image based on the received information. Ex-1003, ¶163.

De Haan discloses the claimed particular movement criterion. As discussed above in Section VIII.A.5, controller 315 receives information from accelerometer 310 regarding movement of device 105. *De Haan* discloses that its device determines if a gesture is performed and “an operation that corresponds to the movement [of the device] and interact with the content when it is determined that the movement includes the gesture.” *Id.*, ¶[0004].

De Haan further discloses the claimed particular image data. As discussed above in Section VIII.A.7, controller 315 provides compensation information that use to stabilize the image by projector 305 and controller 315 performs operations that result in scrolling, highlighting, etc.

De Haan discloses the claimed application. *De Haan* discloses “numerous types of applications accessible and/or stored on device 700 while utilizing device 105.” *Id.*, ¶[0103]. *De Haan* discloses that its “applications may include a variety of software programs, such as a contact list, a digital audio player, a digital media player, an organizer, a text messenger, a calendar, a game, a web browsing device,

a projector, a camera, etc.” *Id.*, ¶[0062]. *De Haan* discloses that a user can “interact with an application or interface associated with the selection of” an icon, such as interacting with icon 115-2 using indicator 120, shown in Figure 1 below to scroll and select. *Id.*, ¶¶[0037]-[0038]. A user’s gesture may be used to scroll or select.

Id.

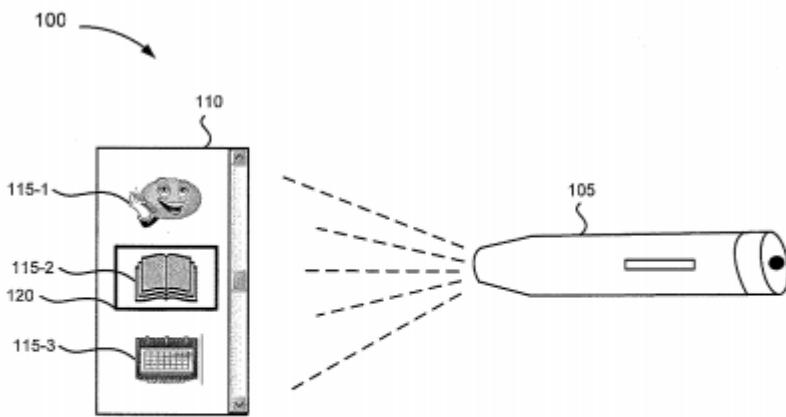


Fig. 1

Id., FIG. 1.

De Haan discloses the claimed image associated with one or more of a particular function within an application, or one of a plurality of different applications, to be projected by the projector. *De Haan* discloses that “device 105 may recognize a set of default movements or gestures (e.g., a stroke from left to right, a stroke from right to left, a tap movement) that may be performed by a user for a particular operation (e.g., to scroll from left to right, to scroll from right to

left, to enter a character or to make a selection)." *Id.*, ¶[0068]. A POSA would have understood that *De Haan*'s operations such as scrolling and selecting would be used for a function within an application or one of several applications such as those described above, including a web browser. *See id.*, ¶[0039]; Ex-1003, ¶167.

C. [Claim 3]

De Haan teaches this claim as discussed above in claim 2 in Section VIII.B because claim 3 includes the same claim limitations as claim 2. Ex-1003, ¶168. Thus, Petitioner relies upon the arguments set forth above in Section VIII.B for claim 2. Claim 3 shares substantially similar language with claim 2, as discussed in Mr. Gray's declaration. Ex-1003, ¶168.

D. [Claim 4]

De Haan teaches this claim as discussed above in claim 2 in Section VIII.B because claim 4 includes the same claim limitations as claim 2. Ex-1003, ¶169. Thus, Petitioner relies upon the arguments set forth above in Section VIII.B for claim 2. Claim 4 shares substantially similar language with claim 2, as discussed in Mr. Gray's declaration. Ex-1003, ¶169.

E. [Claim 5]

De Haan teaches this claim limitation because *De Haan* discloses a device that projects an image and is interacted with by scrolling across the image and including projecting and using a cursor or selector. Ex-1003, ¶170.

De Haan discloses the claimed “particular image data for a particular movement criterion,” as discussed above in Section VIII.B because *De Haan* discloses a controller that receives movement information from an accelerometer (see Section VIII.B) and projects an indicator and scrolls across an image based on the received information (see Section VIII.B).

De Haan also discloses an image associated with part of a larger image. *De Haan* discloses that its device determines if a gesture is performed and “an operation that corresponds to the movement [of the device] and interact with the content when it is determined that the movement includes the gesture.” *Id.*, ¶[0004]. For example, “a pointer or a selector (e.g., an indicator 120) or user interface 110 may scroll to icon 115-2 in response to the user's gesture,” as shown below in FIG. 1. *Id.*, ¶¶[0037], [0081].

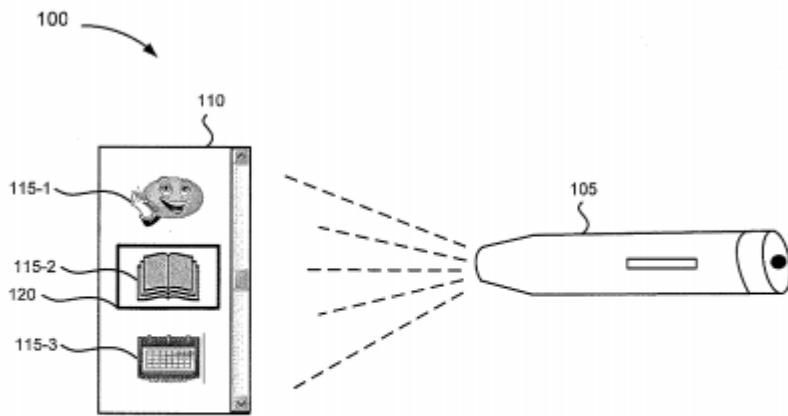


Fig. 1

Id., FIG. 1.

De Haan also discloses movement of the projector provides for scanning across to and projection of respective parts of the larger image through a disclosed hand gesture. *De Haan* discloses that its device determines if a gesture is performed and “an operation that corresponds to the movement [of the device] and interact with the content when it is determined that the movement includes the gesture.” *Id.*, ¶[0004]. Specifically, the operation might be “scrolling, selecting, entering data, highlighting, dragging-and-dropping, or navigating in a menu.” *Id.*, ¶[0006].

De Haan also discloses the claimed projection of respective parts of a larger image because *De Haan*’s FIG. 1 illustrates a menu with a scroll bar for access to portions of the larger image. *Id.*, FIG. 1. *De Haan* also discloses a web browser. *Id.*, ¶¶[0062], [0103]. A POSA would have understood that the menu scroll bar would be used to scroll to different parts of a web page or navigation menu (i.e., the claimed larger image). Ex-1003, ¶174.

De Haan discloses the claimed “scanning across to and projection of respective parts of the larger image,” associated with the disclosed hand gesture and associated scrolling features. For instance, *De Haan* discloses a pointer or selector (the claimed “image associated with part of a larger image”) of device 105, where device 105 responds to a user’s gesture (the claimed “particular

movement criterion”) to scroll (the claimed “projector provid[ing] for scanning across to and projection of respective parts of the larger image”). *De Haan*, ¶[0037]. A POSA would have understood that *De Haan*’s scrolling corresponds to “scanning across to and projection of respective parts of the larger image.” Ex-1003, ¶175.

F. [Claim 6] A processor according to claim 5, wherein the movement of the projector provides for incremental scanning across to and projection of respective parts of the larger image.

De Haan teaches this claim limitation because *De Haan* discloses a device that projects an image and can be interacted with by scrolling across the image with varying degrees of scroll speed including according to a length of scroll. Ex-1003, ¶176. To the extent Patent Owner argues that changing a length of scroll does not disclose incremental scanning, *De Haan* renders obvious incremental scanning because *De Haan* discloses varying degrees of scroll speed including changing a length of scroll and incremental scanning would be an obvious and predictable result of using differing lengths of scrolling, for example, to select icons. Ex-1003, ¶176.

De Haan discloses the claimed incremental scanning. *De Haan* discloses that the operation of scrolling, as discussed above with respect to claim 5 in Section VIII.E, “may have varying degrees of scrolling (e.g., the speed of the scroll, *the length of the scroll*, etc.) based on acceleration, speed, etc., associated

with the user's gesture." *Id.*, ¶[0080] (emphasis added). Scrolling using a measurement of "the length of the scroll" corresponds to the claimed incremental scanning because scrolling using a specific length is scrolling using an increment. Ex-1003, ¶177. Additionally, a POSA would have understood that *De Haan*'s disclosure of varying degrees of scrolling, including changes in speed and length, renders obvious the claimed "incremental scanning," because "incremental" is a predictable and obvious degree of scrolling to use, for example, when selecting distinct user interface icons of a user interface because selection of each icon is accomplished one at a time. Ex-1003, ¶177.

G. [Claim 7]

De Haan teaches this claim limitation because *De Haan* discloses a device that projects an image and can be interacted with by scrolling across the image with varying degrees of scroll speed which would include continuous scanning. Ex-1003, ¶178. To the extent Patent Owner argues that changing a length of scroll does not disclose incremental scanning, *De Haan* renders obvious incremental scanning because *De Haan* discloses varying degrees of scroll speed including changing a length or speed of scroll and continuous scanning would be an obvious and predictable result of using differing lengths and speeds of scrolling. Ex-1003, ¶178.

De Haan discloses the claimed continuous scanning. *De Haan* teaches that the operation of scrolling, as discussed above with respect to claim 5 in Section VIII.E, “may have varying degrees of scrolling (e.g., the speed of the scroll, the length of the scroll, etc.) based on acceleration, speed, etc., associated with the user’s gesture.” *Id.*, ¶[0080]. For example, “may perform an angled gesture 520 (represented by an arrow in FIG. 5B) with device 105 to cause a scrolling of left to right and a scrolling from down to up.” *Id.*, ¶[0071]. Further, “accelerometer 310 may be used to detect speed and/or acceleration for causing fast scrolling as opposed to slow scrolling depending on the movement (i.e., the user’s gesture).” *Id.*, ¶[0071]. Scrolling based on “speed of the scroll” corresponds to the claimed continuous scanning because scrolling to achieve a quick scroll speed would use continuous scrolling. Ex-1003, ¶179. A POSA would have understood that *De Haan*’s disclosure of varying degrees of scrolling, including changes in speed and length, renders obvious the claimed “continuous scanning,” because “continuous” is a predictable and obvious degree of scrolling to use, for example, when moving from one portion of a web browser to another. Ex-1003, ¶179.

H. [Claim 8]

De Haan teaches this claim limitation because *De Haan* discloses its image projecting device is a handheld device that includes a projector. Ex-1003, ¶180.

The '071 patent describes a “micro-projector” as “a smaller projecting unit than is found in, for example, home theatre size projectors” and “is capable of being easily moved by a user’s hand, in that it is hand portable.” Ex-1001, 4:66-5:3.

De Haan discloses the claimed projector is a micro-projector. *De Haan* discloses that its device is a portable device that can be held in user’s hand and includes a projector. *Id.*, ¶¶[0037], [0050].

I. Claim 9

1. [9A]

De Haan teaches this claim limitation because *De Haan* discloses a handheld device (i.e., claimed apparatus) that includes a control unit (i.e., claimed processor) that includes an accelerometer (i.e., claimed movement sensor) within its handheld device that determines, for example, speed and path information of the handheld device. Ex-1003, ¶183.

De Haan discloses the claimed apparatus and that the apparatus includes the claimed movement sensor. *De Haan* discloses device 105 including projector 305, using projector lens 220 as shown in FIG. 2, accelerometer 310, and controller 315. *Id.*, ¶¶[0037], [0042], [0050].

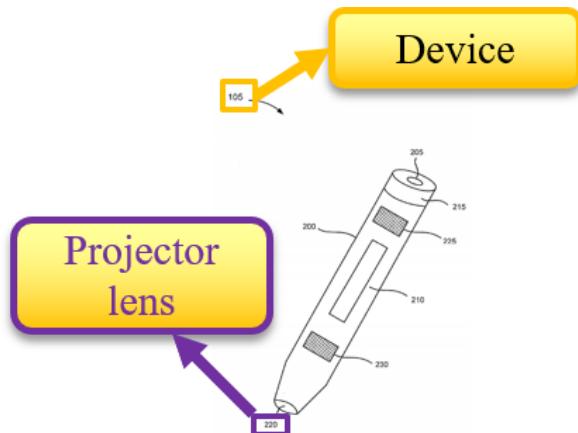


Fig. 2

Id., Annotated FIG. 2.

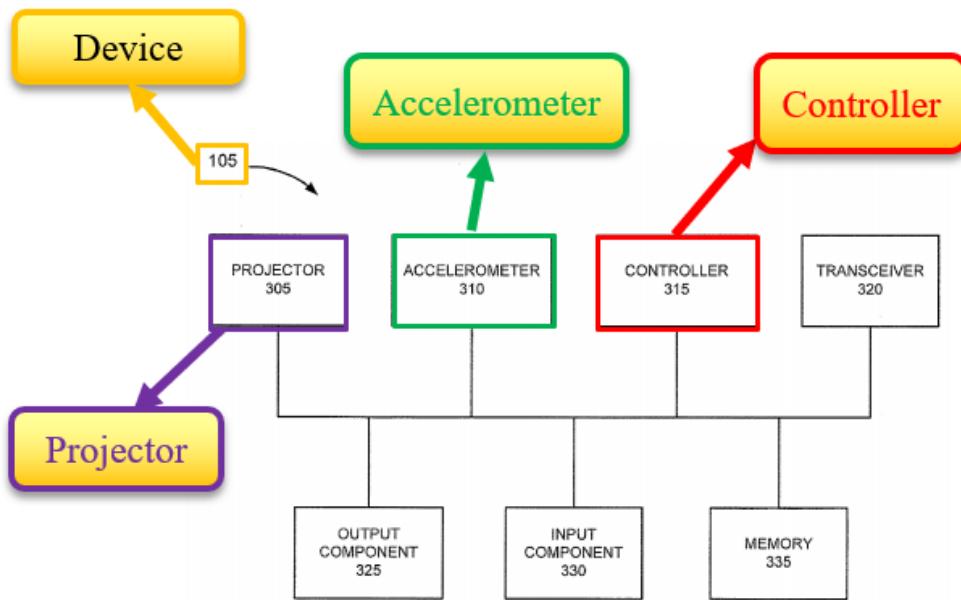


Fig. 3

Id., Annotated FIG. 3.

De Haan's device 105 corresponds to the claimed "apparatus." Ex-1003, ¶185.

De Haan also discloses the claimed movement sensor configured to detect movement of the apparatus and/or a projector. *De Haan* discloses that its “[a]ccelerometer 310 may measure speed and/or trace or path information caused by the movement of device 105.” *Id.*, ¶[0053] (emphasis added). *De Haan*’s accelerometer 310 corresponds to the claimed “movement sensor configured to detect movement of the apparatus and/or a projector.” Ex-1003, ¶186.

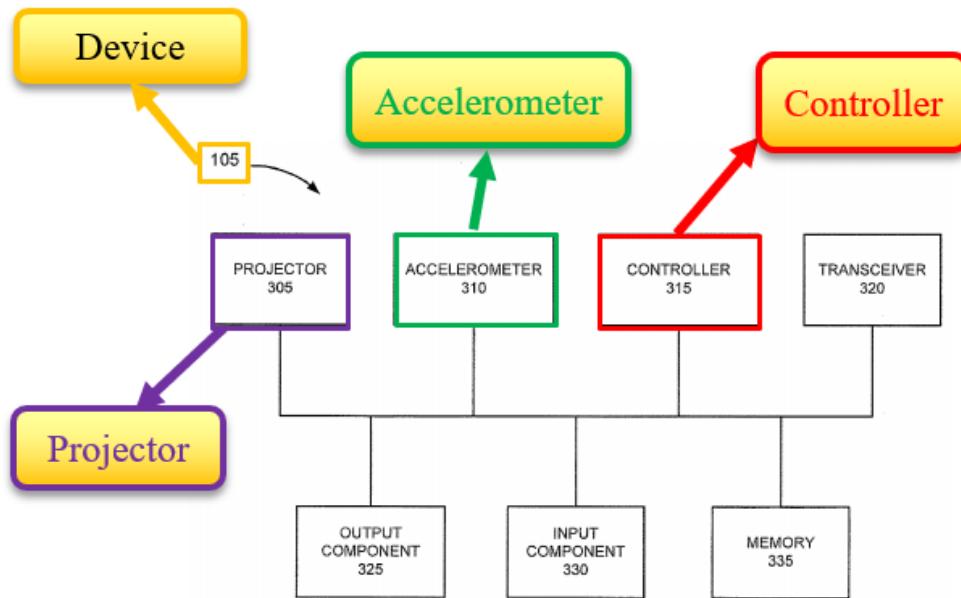
2. [9B]

De Haan teaches this claim limitation because *De Haan* discloses a controller (i.e., claimed processor) that receives gesture and non-gesture information including, for example, speed and path information, from an accelerometer that the controller uses to determine compensation information or perform operations of the device. Ex-1003, ¶187.

De Haan discloses the claimed movement signaling as discussed above in Section VIII.A.2. *De Haan* discloses the claimed movement sensor configured to provide corresponding movement signaling to the processor. *De Haan* discloses that information from its accelerometer 310 may include “trace or path information, an acceleration measurement, a speed measurement, and other types of information” related to movement of device 105. *Id.*, ¶¶[0056]-[0057]. This information is “receive[d]” by controller 315 “from accelerometer 310.” *Id.*

J. Claim 10**1. [10A]**

De Haan discloses the claimed apparatus is a projector or the apparatus includes a projector. Fig. 3 of *De Haan* shows device 105 that includes projector 305. *Id.*, ¶[0050].

**Fig. 3**

Id., Annotated FIG. 3.

De Haan's device 105 including projector 305 corresponds to the claimed “the apparatus comprises a projector.” Ex-1003, ¶192.

2. [10B]

De Haan discloses the claimed movement sensor (i.e., an accelerometer) is configured to detect movement of the projector. Fig. 3 of *De Haan* shows that device 105 also includes accelerometer 310. *Id.*, ¶[0050].

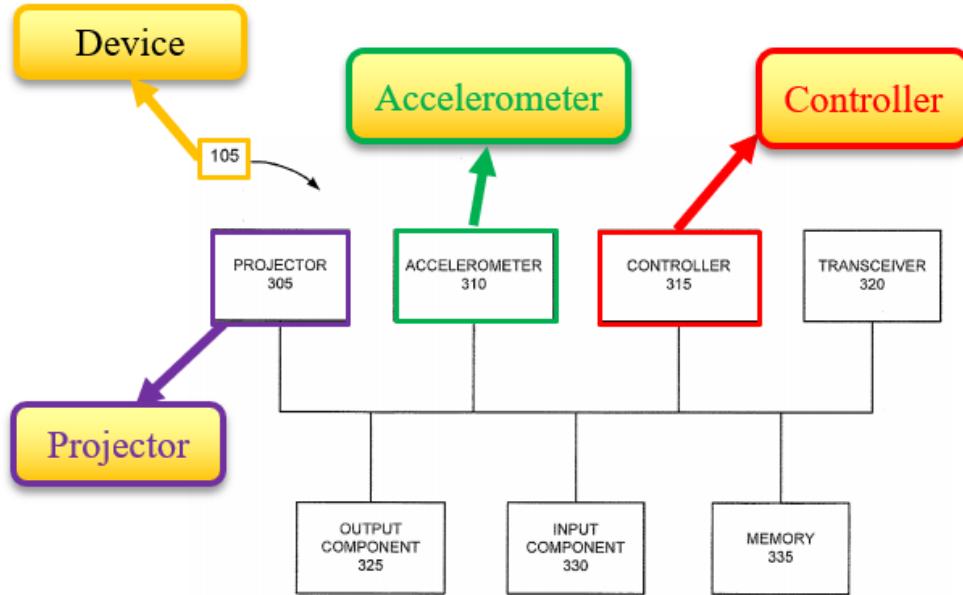


Fig. 3

Id., Annotated FIG. 3.

The “[a]ccelerometer 310 may measure speed and/or trace or path information caused by the movement of device 105.” *Id.*, ¶[0053] (emphasis added).

Accelerometer 310 measuring speed or path information of device 105 corresponds to the claimed “movement sensor is configured to detect movement of the projector.” Ex-1003, ¶195.

K. [Claim 11]

De Haan discloses the claimed apparatus is a module for a projector, as recited in claim 11. *De Haan*'s “[d]evice 105 is intended to be broadly interpreted to include any number of consumer devices.” *Id.*, ¶[0041]. Further, *De Haan* discloses that its “device 105 may include a portable device or a handheld device, such as a wireless telephone, a PDA, an audio player, an audio/video player, an MP3 player, a gaming device, a pervasive computing device, a handheld computer, a data organizer or another kind of communication, computational and/or entertainment device.” *Id.*, ¶[0041]. *De Haan* also discloses that “housing 200 may include a structure capable of containing components and structures of device 105.” *Id.*, ¶[0042].

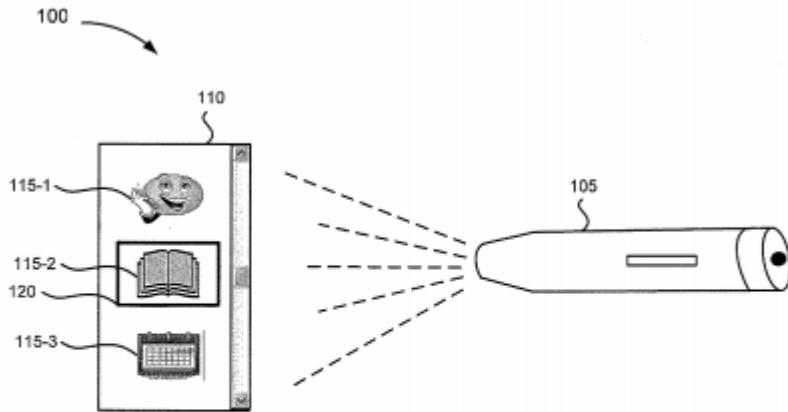
A POSA would have understood that *De Haan*'s device 105, including projector 305, accelerometer 310, and controller 315, would have formed only a portion of the many devices described in *De Haan*, such as a communication device. It would have been obvious to implement *De Haan*'s device 105 as a part of these other disclosed devices. Ex-1003, ¶198.

L. [Claim 12] A user interface configured to be connected to the processor of claim 1, the user interface configured to be operable

to configure the processor to provide image data signaling to the projector based on received movement signaling.

De Haan renders obvious this claim because *De Haan* discloses a user interface for changing a mode of the device or providing other types of input to the device, and *De Haan*'s disclosure of setting a movement to a specific operation would be one of those modes or inputs. Ex-1003, ¶199.

De Haan discloses the claimed user interface connected to the processor. *De Haan* discloses that its device 105 may project content “correspond[ing] to a user interface 110.” *Id.*, ¶[0037]. Further, “[c]ontroller 315 may include a component that interprets and executes instructions to control one or more other components of device 105.” *Id.*, ¶[0054]. A POSA would have understood that controller 315 is connected to user interface 110 because controller 315 operates the components of device 105. Ex-1003, ¶200. Specifically, *De Haan* discloses that a user can “interact with an application or interface associated with the selection of” an icon, such as interacting with icon 115-2 using indicator 120, shown in Figure 1 below. *Id.*, ¶[0038].

**Fig. 1***Id.*, FIG. 1.

De Haan discloses a physical user interface of device 105 in that it discloses wheel 215 and button 205 that are operable to make selections or perform other operations such as scrolling. *Id.*, ¶[0044].

De Haan discloses the claimed user interface configured to be operable to configure the processor. *De Haan* discloses that device 105 includes wheel 215 and button 205, [that permits] a user to make a selection (e.g., from information presented via user interface 110, shown above), change a mode of device 105, turn on and turn off a function, and/or other types of input relating to the operation and use of device 105.” *Id.*, ¶[0044]. Controller 315 “interprets and executes instructions to control one or more other components of device 105.” *Id.*, ¶[0054]. Thus, a POSA would have understood that controller 315 would be configured

using wheel 215 and button 205 to allow input into device 105 from a user because controller 315 would process and adjust operation and use of device 105 according to the user inputs. Ex-1003, ¶202.

De Haan discloses the claimed user interface configured to be operable to configure the processor to provide image data signaling to the projector based on received movement signaling. *De Haan* discloses “device 105 may provide that a user may set (e.g., program) a movement to correspond to a particular operation.” *Id.*, ¶[0068]. A POSA would have understood that changing a mode of device 105 or providing other types of input relating to the operation of device 105 would have included using user interface 110 to operate and use device 105 including setting a movement corresponding to a particular operation. Ex-1003, ¶203. A POSA would have understood that controller 315 would process and adjust operation and use of device 105, including setting a movement corresponding to a particular operation, according to user inputs via user interface 110. Ex-1003, ¶203.

M. Claim 13

De Haan anticipates this claim because claim 13 is a method that claims substantially similar limitations as those performed by the processor of claim 1. Ex-1003, ¶204.

The limitations of claim 13 are substantially similar to those of claim 1, except that claim 13 is a “method of” performing the same functionality claimed in claim 1; thus, Petitioner relies upon the arguments set forth above in Sections VIII.A.1-VIII.A.7 for claim 1. Ex-1003, ¶205 (comparing claims); *see Smart Sys. Innovations, LLC*, 873 F.3d at 1368 n.7 (Fed. Cir. 2017).

N. Claim 14

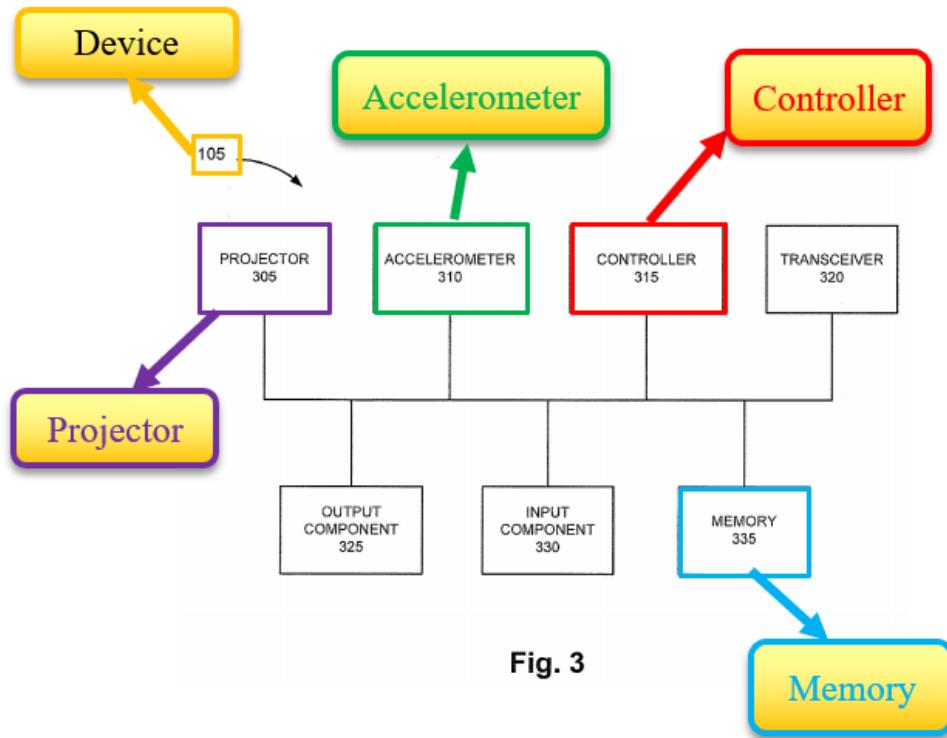
De Haan anticipates this claim because claim 14 claims program code that includes substantially similar limitations as those performed by the processor of claim 1 except for claim [14p], which is also disclosed by *De Haan*. Ex-1003, ¶206.

The limitations of claim 14 are substantially similar to those of claim 1, except claim [14p] discussed below. For claim elements 14A-14E, Petitioner relies upon the arguments set forth above in Sections VIII.A.1-VIII.A.7 for claim 1. Ex-1003, ¶207 (comparing claims); *see Smart Sys. Innovations, LLC*, 873 F.3d at 1368 n.7.

1. [14p]

De Haan discloses the preamble of claim 14, if it is limiting, because *De Haan* discloses a controller that executes instructions to control other components of *De Haan*’s device.

De Haan discloses the claimed computer readable medium. As shown in Fig. 3, *De Haan* discloses device 105 including controller 315 and memory 335. *Id.*, ¶¶[0061], [0064].



Id., Annotated FIG. 3.

De Haan discloses the claimed computer program code executed by one or more processors. *De Haan* discloses its “[c]ontroller 315 may access instructions from memory 335,” and that “controller 315 . . . interprets and executes instructions to control one or more other components of device 105.” *Id.*, ¶¶[0054]-[0055]. Further, “[m]emory 335 may include a component capable of storing data and/or instructions related to the operation and use of device 105.” *Id.*, ¶[0061]. A

POSA would have understood that “memory 335” disclosed by *De Haan* corresponds to the claimed “computer readable medium.” *De Haan*’s memory 335 stores instructions for the operation of device 105, accessed by controller 315, corresponding to the claimed “computer readable medium comprising computer program code configured to, when executed by one or more processors, cause an apparatus to perform” *De Haan*’s instructions to operate device 105.

IX. NON-INSTITUTION UNDER 35 U.S.C. §§ 314 OR 325 WOULD BE IMPROPER

Non-institution under 35 U.S.C. §§ 314(a) or 325(d) would be improper. The existence of parallel district court proceedings should not prevent institution of this Petition. *Cf. NHK Spring Co. v. Intri-Plex Techs., Inc.*, IPR2018-00752, Paper 8, at 19-20 (PTAB Sept. 12, 2018); *see also* Litigation. No factor favors denial of institution because, at this time, there is no investment beyond the initial discoveries at the district court and this IPR petition. Moreover, the strong merits of this case favor institution.

A. Non-Institution Under 35 U.S.C. §314(a) Is Improper

First, non-institution under 35 U.S.C. §§ 314(a) would be improper. Under the factors articulated in *Apple Inc. v. Fintiv, Inc.*, IPR2020-00019, Paper 11 (PTAB Mar. 20, 2020 (precedential)), non-institution in light of the litigations

would be improper because Factors 2-4 and 6 of the *Fintiv* factors favor institution, and Factors 1 and 5 are neutral.

Factor 1 (district court stay) is neutral. While ZTE moved to stay on December 30, 2020, *see Litigation*, Dkt. 47, there remains no indication that the district court will grant or deny the motion to stay. *Int'l Bus. Machines Corp. v. Trusted Knight Corp.*, IPR2020-00323, Paper 15 at 9 (PTAB Jul. 10, 2020). As discussed below, the motion to stay is based on ZTE's pending Motion to Dismiss for Improper venue under § 1400, which unlike venue for convenience under § 1404, is not discretionary. *See Litigation*, Dkt. 45.

Factor 2 (proximity to district court trial) favors institution. The pending district court case is not scheduled for trial until June 20, 2022, and this date is subject to delays. Therefore, the Board will likely issue a final written decision before the pending district case. ZTE has moved to dismiss based on improper venue, and further moved to stay until venue is set. These motions are currently pending, making it “unclear that the court in the related district court litigation will adhere to any [future] scheduled jury trial date.” *Sand Revolution II, LLC v. Cont'l Intermodal Group-Trucking LLC*, IPR2019-01393, Paper 24, at 9 (PTAB June 16, 2020) (informative). Should the district court grant either of the pending improper venue motion or the motion to stay, these cases will be assigned new, later trial dates likely in a new forum. Additionally, it is further noted that Judge Albright is

IPR2021-00695 Petition
U.S. Patent 8,147,071

unable to maintain trials based on their originally scheduled dates and is delaying the trials. As one example, the *VLSI Tech. LLC v. Intel Corp.*, No. 1:19-cv-00254 (W.D. Tex.) trial this month was delayed four months from its original date in October 2020.

Factor 3 (investment in district court case) favors institution. The parties' and the court's investment in this case has been minimal. *Fintiv*, Paper 11, at 11. Although preliminary infringement and invalidity contentions have been served, claim construction has only just begun, and the claim construction hearing is not scheduled to occur for another two months in May 2021. In addition, the parties have not conducted any substantive fact discovery, as fact discovery does not open until after the claim construction hearing. Finally, the district court has not addressed the substance of the '071 Patent—Patent Owner did not move for a preliminary injunction, and Defendants did not move to dismiss Patent Owner's action based on the substance of the '071 Patent, such as a motion to dismiss based on § 101. Where, as here, “the district court has not issued orders related to the patent at issue in the petition, this fact weighs against exercising discretion to deny institution.” *Fintiv*, Paper 11, at 10.

Factor 4 (overlapping issues) favors institution. WSOU is a prolific filer of patent infringement lawsuits. Based on WSOU's litigation activity, it is likely that WSOU will bring more suits against other parties based on the '071 patent.

Resolving the invalidity questions raised herein would mitigate any concern of duplicative efforts in the future. Additionally, ZTE will stipulate that, if this IPR is instituted, it will not pursue the specific grounds identified in this Petition (Sections VII-VIII) before the district court. This stipulation mitigates any concern of duplicative efforts. *Sand Revolution*, Paper 24, at 11-12.

Factor 5 (whether petitioner is also the defendant in district court) is neutral.

Factor 6 (other circumstances) favors institution. As explained above, the challenged claims are unpatentable over *Huebner*, and *De Haan*—none of which were considered during prosecution. A determination of its validity by the Board here would still save resources in the associated district court, and any additional cases WSOU may bring. There is a significant public interest against “leaving bad patents enforceable,” *Thryv, Inc v. Click-To-Call Techs., LP*, 140 S. Ct. 1367, 1374 (2020).

B. Non-Institution Under 35 U.S.C. §325 Is Improper

Second, Non-institution under § 325 would also be improper based on a weighing of the factors set forth in *Becton, Dickinson & Co. v. B. Braun Melsungen AG*, IPR2017-01586, Paper 8 (PTAB Dec. 15, 2017). The asserted combinations are materially different and not cumulative of the prior art involved during the examination of the challenged claims. During prosecution, the following reference was applied by the examiner: *Adachi* (Ex-1009). *Adachi* describes

projecting capabilities “in consumer electronic devices that are used for the capture or reproduction of images.” *Adachi*, Abstract.

The primary references in the asserted combinations, *Huebner* and/or *De Haan*, were never listed by the Patent Owner nor cited by the examiner. They were never discussed or applied by the examiner to reject any claims. They are materially different from and not cumulative of the earlier references at least because they describe projection imaging devices that include movement sensors—elements that WSOU argued were missing from *Adachi*. There is thus little to no overlap between the current and prior arguments. *Becton*, Paper 8, 23. But *Huebner* and *De Haan* teach these added limitations, making denial under § 325(d) improper. Sections VII-VIII.

X. MANDATORY NOTICES

A. Real Parties-in-Interest

The real parties-in-interest are ZTE Corporation, ZTE (USA), Inc., and ZTE (TX), Inc.

B. Related Matters

Patent Owner has asserted '071 patent in litigation against Petitioners in the Litigation, filed on June 3, 2020. *See also WSOU Investments, LLC v. ZTE*

IPR2021-00695 Petition
U.S. Patent 8,147,071

Corporation et al., 6:20-cv-00231 (WSOU initially asserted '071 patent against Petitioners on March 26, 2020 and dismissed the case on June 3, 2020).

C. Lead and Back-Up Counsel, and Service Information

Petitioners provide the following counsel and service information. Pursuant to 37 C.F.R. § 42.10(b), Powers of Attorney accompany this Petition. Petitioners consent to e-mail service at the e-mail addresses identified in the table below, as well as at ZTE-WSOU-IPRs@finnegan.com.

LEAD COUNSEL (ZTE)	BACK-UP COUNSEL (ZTE)
<p>Lionel Lavenue (Reg. No. 46,859) <u>lionel.lavenue@finnegan.com</u> Finnegan, Henderson, Farabow, Garrett & Dunner, LLP 1875 Explorer Street, Suite 800 Reston, VA 20190-6023 Tel: (571) 203-2750 Fax: (551) 203-2777</p>	<p>Cory Bell (Reg. No. 75,096) <u>cory.bell@finnegan.com</u> Finnegan, Henderson, Farabow, Garrett & Dunner, LLP Two Seaport Lane Boston, MA 02210-2001 Tel: (617) 646-1641 Fax: (617) 646-1666</p> <p>Bradford C. Schulz (Reg. No. 75,006) <u>Bradford.schulz@finnegan.com</u> Finnegan, Henderson, Farabow, Garrett, & Dunner LLP 1875 Explorer Street, Suite 800 Reston, VA 20190-6023 Tel: 571-203-2739 Fax: 202-408-440</p> <p>Mingji Jin (Reg. No. 69,674) <u>mingji.jin@finnegan.com</u> Finnegan, Henderson, Farabow, Garrett & Dunner, LLP 901 New York Avenue NW, Washington, DC 20001-4413 Tel: (202) 408-6020</p>

IPR2021-00695 Petition
U.S. Patent 8,147,071

	<p>Fax: (202) 408-4400</p> <p>R. Maxwell Mauldin (Reg. No. 78,626) r.maxwell.mauldin@finnegan.com Finnegan, Henderson, Farabow, Garrett & Dunner, LLP 271 17th Street, NW, Suite 1400 Atlanta, GA 30363-6209 Tel: (404) 653-6400 Fax: (404) 653-6444</p>
--	----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

XI. GROUNDS FOR STANDING

Petitioner certifies the '071 patent is available for IPR and Petitioner is not barred or estopped from requesting IPR challenging the patent claims on the grounds identified in this Petition.

XII. CONCLUSION

Petitioner has established a reasonable likelihood of prevailing with respect to each of the challenged claims 1-14 of the '071 patent. Petitioner therefore requests the Board institute *inter partes* review and cancel each of these claims as unpatentable.

The Office may charge any required fees for this proceeding to Deposit Account No. 06-0916.

IPR2021-00695 Petition
U.S. Patent 8,147,071

Date: March 26, 2021

Respectfully Submitted,

/Lionel M. Lavenue/
Lionel M. Lavenue, Lead Counsel
Reg. No. 46,859

CERTIFICATION UNDER 37 C.F.R. § 42.24(d)

Pursuant to 37 C.F.R. § 42.24(a)(1)(i), the undersigned hereby certifies that the foregoing PETITION FOR *INTER PARTES* REVIEW contains 13,743 words, excluding the parts of this Petition that are exempted under 37 C.F.R. § 42.24(a), as measured by the word-processing system used to prepare this paper.

/Lionel M. Lavenue/
Lionel M. Lavenue, Lead Counsel
Reg. No. 46,859

IPR2020-00695 Petition
U.S. Patent 8,147,071

CERTIFICATE OF SERVICE

The undersigned certifies that the foregoing Petition for *Inter Partes* Review, the associated Power of Attorney, and Exhibits 1001 through 1009 are being served on March 26, 2021, by Priority Mail Express or by means at least as fast as Priority Mail Express at the following address of record for the subject patent.

Guy Gosnell
Nokia Corporation and Alston & Bird LLP
c/o Alston & Bird LLP
One South at The Plaza, 101 South Tryon Street
Suite 4000
Charlotte NC 28280-4000

A courtesy copy has been served on litigation counsel at:

Ryan S. Loveless
Etheridge Law Group, PLLC
2600 E. Southlake Blvd., Suite 120 / 324
Southlake, TX 76092

/Daniel E. Doku/
Daniel E. Doku
Litigation Clerk

FINNEGAN, HENDERSON, FARABOW,
GARRETT & DUNNER, LLP